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China Report

AGRICULTURE

No. 227

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I. GENERAL INFORMATION

WAYS TO ASSURE WATER TO BEIJING, TIANJIN SUGGESTED

Beijing RENMIN RIBAO in Chinese 18 Jul 82 p 3

[Article by Lu Yazhou [7120 0068 3166] and Gu Dingfa [7357 1353 3127], of the Natural Resources Comprehensive Study Commission, Chinese Academy of Sciences: "Six Suggestions For Assuring Water to Beijing and Tianjin Municipalities"]

[Text] Why has there been a water shortage in the Beijing-Tianjin area for the past 2 years? The continuous drought since 1980 is, of course, one reason, but more important reasons are inappropriate use of water and lack of serious attention to the construction of water sources. If the conflict between supply and demand for water resources in Beijing and Tianjin are to be fundamentally solved, in addition to the strengthening of management over the use of water, the following six tasks must be emphasized.

1. A Good Job Must Be Done of Building Water Resources, With Planning as a Whole for Water Use in Upper and Lower Reaches

Beijing and Tianjin are located on the lower reaches of the Hai He where the building of water sources must proceed from overall arrangements for the entire river basin. During the 1950's, water resources were very good in Tianjin. However, since 1958, many reservoirs have been built on the upper reaches of the Hai He, and on the middle reaches farmland irrigation has developed over large areas. By the 1970's, the volume of water on the lower reaches had been reduced to 2 billion cubic meters, only one-fourth the volume of the 1950's. During the 1960's, Tianjin depended for its supply of water on the Miyun, Gangnan, Huangbiya, Wangkuai, Xidayang, and Jiucheng reservoirs. Later on, except for the Miyun and Guanting reservoirs, the reservoirs ceased to provide water, with the result that Tianjin gradually experienced a water shortage. Today, 18 large and medium-size reservoirs have been built on the upper reaches of the Guanting reservoir, causing a gradual reduction in the volume of water on the upper reaches and causing difficulties in control and use of Guanting reservoir.

In order to assure water for Beijing, if further development of water resources is to be carried out on the upper reaches of the Guanting and Miyun reservoirs, overall planning has to be provided on the principle of concurrent concern for the upper and lower reaches. In addition, both the Beijing and Tianjin areas must give attention to the building of their own sources of water, carrying out planned construction of water storage and water diversion projects to increase water sources.

2. Supply of Water for Urban Life and Industry Must be Separated From Supply of Water for Agriculture

Water used in Beijing and Tianjin is used mostly for daily life, industry, and agriculture. Agriculture uses the largest amount, taking 65-75 percent of the total. Only 4-7 percent of the total volume is used for daily life. Water supplied to urban areas of Beijing and Tianjin from fairly large water sources such as the Miyun, Guanting, Yuqiao, and Panjiakou reservoirs has to traverse vast farmlands, and without the necessary management and engineering measures, it is very difficult to assure the cities a supply of water. Therefore, in order to assure normal water supply to the cities for daily life and industry in years of particularly serious drought, their supplies should be separated from those of agriculture, and an independent system for supplying water for urban life and industry must be built gradually to prevent competition from agriculture for water.

3. Sensible Management of the Use of Large Reservoir Water Resources

The Miyun reservoir is a large reservoir that has served to regulate water for many years. It is one of Beijing's dependable sources of water. However, some problems currently exist in the equitable allocation of water from reservoirs. For example, in working up flood plans, no investigation or study of units using water is made; distribution plans are made solely on the basis of the amount of water in the reservoirs. Sometimes plans allow for the use of whatever water is in the reservoirs, so that reservoirs are unable to play a genuine role as regulators over many years. The Guanting reservoir was also once a large reservoir that regulated water over many years. However, as a result of serious erosion on the upper reaches and excessive accumulations of silt in it, the ability of the reservoir to regulate has declined. In the future both the Miyun and Guanting reservoirs should equitably allocate water, and their upper reaches should be designated water conservation forest preserves for genuine water and soil conservation to reduce silting of the reservoirs.

4. Vigorous Promotion of New Techniques for Farmland Irrigation

During the past several years, spray and drip irrigation have developed in China, but area in which spray and drip irrigation is used is still less than 2 percent of the effective irrigation area. In the Beijing-Tianjin area it is even less: only 0.6 percent. Spray and drip irrigation saves 40-60 percent of the water required for flood irrigation. Currently, agricultural use of water in Beijing and Tianjin amounts to 4.5 billion cubic meters annually, and the effectively irrigated area is 70-80 percent. If spray and drip irrigation were to be used on 70 percent of the vegetable fields and 30-40 percent of the grainfields in the irrigated area, a saving of at least 1.5-2 billion cubic meters annually could be effected. This amounts to the total volume of water used by Beijing for 1 year for daily life and industry.

5. Improvement in Multiple Utilization Rate of Water Used by Industry and Restriction of Development of Industries Consuming Large Quantities of Water

Many representative examples exist in China of conservation of water by industry. In Dalian, for example, the recycling rate for cooling water already stands at 88 percent, and the multiple utilization rate for water used in industry is 75 percent. At present the multiple utilization rate for water used in industry in Tianjin is 50 percent; in Beijing, it is 40 percent. Consequently the potential for continued development of water conservation by industry is still very great. About 70 percent of all water used in industry is for cooling, but among Beijing industries, the recovery rate for cooling water is only 40 percent. Annually about 200 million cubic meters is discharged into sewers. This water has been changed only a little, except that its temperature is somewhat high. All that is needed is the building of cooling equipment and it can continue to be used. In future, the distribution of industries in both Beijing and Tianjin must proceed from local water source realities. There must be little or no building of heavy industries or chemical industries that consume large quantities of water.

6. Readjustment of the Structure of Agriculture and Reduction of the Rice Growing Area

Precipitation in the Beijing-Tianjin area is between 500 and 700 millimeters per year. Development of agricultural production must proceed from this fundamental natural circumstance. Every mu of paddy rice requires 800 cubic meters of water, and if the growing of paddy rice is not rooted in local water resources, there is no use expecting that water will be diverted from elsewhere. Furthermore, rice grown in the Beijing-Tianjin area is prone to damage from low temperatures, so yields are not sufficiently consistent. Therefore, the rice growing area should be limited in the Beijing-Tianjin area, where water resources are not abundant. Instead, more drought-tolerant crops should be grown; otherwise every time there is a drought year, agriculture will "fight for water" with the cities.

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REVIVED EMPHASIS GIVEN PLANTING OF PULSES

Lanzhou GANSU RIBAO in Chinese 23 Jun 82 p 1

[Article: "Province Expands Pulse Crop Area This Year. Development of Pulse Production To Promote Benevolent Cycle in Agriculture"]

[Text] A provincewide conference on pulse production concluded in Lanzhou on 20 June. The correspondent obtained the following from this conference: This year the area throughout the province sown to various kinds of pulse crops will be 3.79 million mu, a somewhat more than 200,000 mu increase over 1981. This provides a fine foundation for revival of the traditional crop rotation system, for a combination of use and nurture of the soil and a combination of farming and livestock raising.

During the past 2 years, with implementation of self-determination for production teams and increased inprices paid by the state for the purchase of soybeans and broad beans, enthusiasm among the broad masses within the province for development of soybean production has remarkably increased, and readjustment of crop patterns on the basis of local conditions has begun. The traditional crop rotation system has been revived, and the area sown to pulses has risen year after year. In drought stricken Dingxi Prefecture in central Gansu, for example, which had been "shot to death" for a time, the fame of flat beans has been restored, and the area sown to peas and flat beans has increased very rapidly. This year the area sown to peas and flat beans in the prefecture has been enlarged to 1,142,600 mu, 54 percent more than in 1978 and almost an all-time high. Tianshui and Wudu, the principle soybean producing prefectures in the province have multiple cropped soybeans over wide areas. This year the multiple cropped and intercropped soybean area amounts to more than 300,000 mu, which is more than 60 percent of the total soybean growing area of the province. Linxia Hui Nationality Autonomous Zhou has devoted attention to broad beans as a "hot selling" product for export. Since 1977 it has kept working on farm experiments for high yields from broad beans over large areas, and during the past 5 years broad bean yields have averaged about 340 jin per mu, which is higher than for wheat. On high yield farm experiment fields, yields averaged around 800 jin per mu.

Following analysis and study, comrades attending the provincewide conference on pulse production acknowledged that Gansu Province has a long history of

farming soybeans, and that revival and development of pulse crops is an effective way in which to promote a benevolent cycle in agricultural production. Inasmuch as soybean crops in the province have everywhere been carelessly grown, varieties mongrelized and degenerate, and yields both low and inconsistent, everyone acknowledged need to promote advanced experiences for increasing yields and to devote efforts to improving yields per unit of area. First it is necessary to give serious attention to breeding of soybean varieties and to introducing varieties from elsewhere, to establish and perfect a pulse crop fine variety propagation system and, at the same time, to change the farming method of "no fertilization of bean fields but looking to heaven for help." Farming techniques have to be improved, fertilizer used, and prevention and control of diseases and insect pests and field care intensified. Furthermore, research on pulses and technical promotion work has to be strengthened.

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CSO: 4007/518

AGRICULTURE'S NEED FOR GRASS, FORESTS IN GANSU UNDERSCORED

Lanzhou GANSU RIBAO in Chinese 17 Jun 82 p 1

[Article by Letter Writer Feng Jixin [7458 4764 2450]: "Economic Effectiveness Is Also a Core Question in Agriculture"]

[Text] Editor's Note: On 13 May, Comrade Feng Jixin wrote a letter to the Dingxi Prefecture CCP Committee in which, on the matter of the planting of grass in Dingxi Prefecture, he emphasized that economic effectiveness is likewise a core question of general significance in agriculture. The letter is published below. All jurisdictions should undertake investigation and study and summarize the lessons of experience to do a good job in accordance with the principle of improved economic effectiveness of planting trees and growing grass, and to do a good job in every aspect of agricultural production.

Dingxi Prefecture CCP Committee:

After reading in GANSU RIBAO, a reporter's article titled, "Status and Problems in Growing Grass in Dingxi Prefecture," I felt the problems raised deserved our attention. It seems that economic effectiveness is not only a core question in industry, but is a core question in agriculture as well. In agriculture, including the planting of trees and growing of grass, it will not do to give no concern to economic effectiveness.

In Dingxi Prefecture, the greatest threat to agriculture is multiple drought disasters. Here ground cover is scarce, the climate arid, and erosion serious, which has meant that for a long time agriculture has been in a vicious cycle. Reasons accounting for this situation are numerous. There are both profound historical reasons and genuine work problems, but most important is the contravention of natural laws and destruction of the ecological balance. This has included a plundering of nature, reckless felling of forests, and ill-advised clearing of land that has brought about soil erosion and loss of soil fertility leading to increased frequency of drought disasters, etc. Therefore, if this problem is to be solved fundamentally, it will be necessary to persevere in energetic planting of trees and growing of grass, to develop the livestock industry, and to increase organic

fertilizer, plus building some projects in a planned way, things such as building of terraced fields and building water conservancy projects. In this way, production conditions can be gradually fundamentally transformed to turn the vicious cycle into a benevolent cycle. Therefore, it is necessary to educate our cadres, and particularly leadership cadres above the county level, in the need to clearly establish two concepts and to effect two changes. By this is meant, first, establishment of a concept of large-scale agriculture, and second, establishment of a concept of changing the vicious cycle in agriculture to a benevolent cycle. Sole concern about grain in agriculture has to be changed to concurrent attention for economic diversification, and sole building of water conservancy has to be changed to concurrent attention to water and soil conservation and improvement in ground cover. In these tasks, doing a good job of planting trees and growing grass is the key.

For the past many years the state has provided no small amount of investment for the planting of trees and the growing of grass in the province's central prefecture, but results have been slight. A study of reasons why shows the main one to be that all levels of leadership cadres lack perception of the importance of growing trees and planting grass. They have yet to regard this work as a strategic action for changing the ecological environment and advancing development of agricultural production. In many places the planting of trees and the growing of grass halts at conferences, in planning, or in rhetoric without being implemented at the grassroots or being translated into mass action. There is neither any deepgoing spread of scientific knowledge about the planting of trees and the growing of grass among peasants and helping the masses understand practical difficulties in planting trees and growing grass, nor is there any strengthening of organizational leadership and spread of representative and advanced experiences in the growing of trees and the planting of grass. Napo Production Brigade in Shichuan Commune, Tongwei County is an advanced model for its achievements in growing grass. Since 1963 it has energetically developed the growing of grass and by 1979 there were 600 mu of grass in the brigade. The number of large livestock has grown to 109 head; there were 410 head of sheep and goats, 180 hogs, and the amount of barnyard manure increased fourfold. Output of grain and oil-bearing crops doubled. Grain output averaged 1,000 jin per capita for self-sufficiency with a surplus for 17 years in a row. If such a fine model has remained unpromoted for many years, is this not a question of leadership?

The problems existing in Dingxi Prefecture in the planting of trees and the growing of grass generally apply to the province as a whole. Consequently, genuine attention should be directed to this problem. I suggest the following:

1. Prefecture and county CCP committees should place the planting of trees and the growing of grass on their daily agenda of important things to do. Several times each year they should hold special discussions on tree planting and grass growing work. There should be planning, inspections, and firm attention to implementation for real benefits with no empty talk. There should be conscientious summarization and promotion of advanced models and advanced experiences, attention going to solution of difficulties and problems the masses have in the planting of trees and the growing of grass.

2. There should be special funds devoted exclusively to use as subsidies for afforestation and the growing of grass that should not be spent recklessly or diverted to other uses. There should be genuine concern for economic effectiveness, every mu planted maturing.

3. Intensification of the spread of knowledge and education as well as technical direction about the growing of trees and the raising of grass. Today, not only do the masses have little scientific knowledge or understanding about the planting of trees and the growing of grass, but our cadres do not know much either. Full use should be made of the role of scientific and technical personnel, and they should be asked to impart knowledge in this regard to cadres and the masses to improve the knowledge of the cadres and masses for a genuine change in their conscious actions.

4. There should be breeding and promotion of fine varieties of trees and grasses suited to local realities. For areas in the central part of the province, drought tolerant, fast growing tree varieties should be selected. In the growing of grass, esparcet [*Onobrychis sativa*], purple flower alfalfa, shadingwang [3097 2092 2489], and Sudan grass may be promoted. These grass seeds are in fairly short supply, esparcet particularly so. Efforts will have to be made to collect, breed, and import them from elsewhere.

Feng Jixin

23 May 1982

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PROVINCIAL CCP OFFICIAL EMPHASIZES PRACTICAL EDUCATION

Lanzhou GANSU RIBAO in Chinese 12 Jun 82 p 1

[Article: "Development of Technical Agricultural Education Is a Top Priority Task in Rural Villages. During Investigation and Study in the Rural Villages of Longdong, Liu Bing Noted That Following Institution of Production Responsibility Systems, Rural Education Will Have To Be Done Well With Serious Attention Given the Spread of Agricultural Science and Technology To Improve Peasant Understanding of Nature and to Improve Natural Abilities "]

[Text] According to a report carried in GUANGMING RIBAO, when Gansu Provincial CCP Committee Deputy Secretary Liu Bing recently conducted investigation and study in Longdong, he noted that following rural implementation of production responsibility systems, rural education will have to be done well with extremely serious attention given the spread of agricultural science and technology to develop peasant intellectual resources.

During mid and late June, Comrade Liu Bing, who has just been transferred from Lanzhou University to Provincial CCP Committee work, went to rural villages to investigate and study. He travelled through seven counties in the old revolutionary base area of Qingyang Prefecture where he visited communes, brigades, and peasants, observing the rural situation.

Liu Bing believes that following establishment of production responsibility systems so that production relationships can be readjusted, it is also necessary to devote attention to development of productivity and to steadily readjust the relationship between man and nature. In terms of the situation in Gansu, two conflicts impair the overall situation in agricultural production. One is the conflict between the need for steady growth of agricultural production and the constant occurrence of natural disasters, and the other is the conflict between improvement in the agricultural labor productivity rate and the peasants lack of scientific and cultural knowledge. Solution to the first of these conflicts entails vigorous planting of trees and growing of grass to increase the forest and grass ground cover rate to improve the ecological environment and gradually realize ecological balance. For the second, the solution lies in firm attention to education and the spread of scientific and technical knowledge about agriculture, and the training of a new generation of cultured peasants who understand technology and who are able to manage.

Liu Bing believes that improvement in the ecological environment is part of the transformation of labor, and that attention to education is part of improvement of the quality of workers. Both of these matters relate to how to understand nature and change nature. He said that looked at in terms of improvement of people's knowledge and improving natural capabilities there is nothing of greater importance for the farflung rural villages than development of technical agricultural education. We have come to realize in the course of investigation that whether in large field production, economic diversification, or the planting of trees and the growing of grass, the kinds of people who do well are of just two kinds. One is the new peasant who has cultural knowledge and a grasp of a certain amount of science and technology. The other is those who, despite their lack of culture, are old farmers with abundant practical experience. Both these kinds of people are able to plan, to farm, and to administer. For example, Zhoujia Commune in Zhengning County has a primary school teacher whose wife is an intellectual youth who returned to the village. In addition to doing a good job of farming the fields for which it is responsible, his family has also learned how to keep bees. The family has raised 20 hives of bees, and last year it earned more than 500 yuan from the sale of honey. This year, in addition to keeping bees, it also used native methods to hatch 300 chicks. In another example, Yiman Commune in Qingyang County has a 62-year-old peasant with much experience in production. In addition to farming the fields for which they are responsible, he and his wife have painstakingly raised long haired rabbits to become a specialized household. Last year they raised 50 rabbits, earning an income of more than 700 yuan from the sale of rabbit fur. As of April this year, their rabbit raising had grown to 72 rabbits, and expected earnings this year will be 1,000 yuan.

Liu Bing said that the foregoing examples show that whether the knoweldge has been learned from books or whether it is the direct experience of peasants, so long as it is demonstrated to be effective in practice, it is scientific and extraordinarily precious. Once a peasant understands science and technology, new productivity can come into being, all agricultural production being transformed thereby.

Liu Bing believes that a current problem is the general lack of peasant knowledge of science and culture. Agricultural science and agricultural production are divorced from each other. Many peasants are still separated from modern science. They do not know what nitrogen, phosphate, potash are, or what ecological balance means. Many places continue to destroy forests to clear land, destroying the vegetation cover and hastening erosion. Agricultural production is still in a vicious cycle. This state of affairs creates a sharp contradiction with the mass peasant enthusiasm that is now surging, and is far from being recognized by people. Right now it is necessary to cry out loudly to the public that simultaneous with the establishment and peffection of agricultural production responsibility systems must come a general increase in peasant scientific and cultural levels, scientific and cultural knowledge being linked to agricultural workers.

Liu Bing said that a fundamental way in which to bring about general improvement in peasant scientific and cultural levels is to take a firm grip on

rural education. He said the school attendance rate in Qingyang Prefecture has fallen and there is a great increase in illiteracy. Within the course of a single year, more than 5,000 middle and primary school students in the prefecture dropped out of school. Why is this? Liu Bing does not entirely agree that with the saying that with "peasant household assumption of full responsibility for task completion;" the kiddies went back home to tend the cows and sheep. He said that following peasant household assumption of full responsibility for task completion, some peasants did experience such a need, but that the main reason for the decline in rural school attendance rates lay in education work itself, specifically in education and agricultural production being divorced from each other. Peasants felt that sending sons and daughters to school was of no use and they were not very interested in education.

Finally Liu Bing said that in order to change this state of affairs and make education meet the needs of agricultural production, it is necessary, on the one hand, to devote attention to the spread of education and to all sorts of after hours education, while making up ones mind, on the other hand, to restructure rural middle school education. Rural middle schools and the upper grades of primary schools should increase the number of courses in agricultural scientific and technical information. Some middle schools should be converted to agricultural middle schools, only a minority number being retained as regular middle schools. In this way it will be possible for most students to return to the countryside following graduation with "arms" they can use, able to engage in agricultural production with high proficiency. He said that to take Qingyang Prefecture as an example, annually each county has several hundred or as many as a thousand middle school graduates return home to farm. If all of them had studied a certain amount of farm science, and were able to select fine varieties, to use chemical fertilizers, to use pesticides, to propagate seedlings, to graft, to raise livestock and poultry, their return would be tantamount to several hundred or up to a thousand farm technicians arriving. If each of them attended to production in his own home, that would be in several hundred or up to a thousand households. If these were carried on for 10 to 20 years, every single production team and household would have a mass of agricultural technical personnel. They would be able to spread advanced techniques in scientific farming and economic diversification to every corner. Therefore, we should use strategic vision in dealing with rural education. We should not stint on spending the capital or stint on doing all that is necessary to do a solid job of rural education so that every peasant will become intelligent. When that time comes, our agricultural productivity will produce a quality take-off, everyone's understanding of nature and ability to transform nature will be greatly increased, and the vistas for agricultural production will become broader and broader.

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AGRICULTURAL, SIDELINE PRODUCT PROCUREMENT IMPROVED

Guangzhou NANFANG RIBAO in Chinese 4 Jul 82 p 1

[Article: "Improvement This Year in Province's Agricultural and Sideline Procurement Work; Adherence to Planned Economy as the Key With Concurrent Concern For the Welfare of the Country, Collectives and Individuals"]

[Text] The correspondent obtained the following from the provincial Finance and Trade Work Conference that began here yesterday. This year the province's agricultural and sideline products procurement work has shown improvement, beginning a turnaround in the trend of declining procurement of the past several years. Out of 27 varieties of category 1 and category 2 goods, the procurement of 16 kinds showed an increase compared with the same period last year.

Between January and May this year, the total output value of agricultural and sideline products procured amounted to 1.712 billion yuan, a 12.3-percent increase over the same period last year. This included procurement at list price amounting to 849 million yuan, a 7.8-percent increase, and procurement at negotiated prices amounting to 863 million yuan, an increase of 16.9 percent. Category 1 and category 2 goods for which procurement increased over the same period last year were foodstuffs, edible oil, sugarcane, live hogs, aquatic products, jute and ambari hemp, cassia bark, citronella oil, rush bags, moso bamboo, flue-cured tobacco, tea, cowhide, pineapple, lumber, li bamboo [6853 4554], with sugar output, procurement and quantity transferred reaching all-time highs. This is the result of the adherence of the province's rural villages to a program of taking planned economy as the key with market regulation being supplementary, and concurrent concern for the state, the collective, and the individual in agricultural and sideline procurement work.

All jurisdictions have accumulated many fine experiences in the procurement of agricultural and sideline products. In Gaozhou County, for example, the food department adopted "procurement of every hog, making separate final accountings for list price and negotiated price," in the procurement of live hogs. The Lianshan County Supply and Marketing Cooperative adapted general methods to local situations in order to advance development of economic diversification in mountain regions. In Boluo County, the Henghe Supply and Marketing Cooperative dealt in agricultural and sideline products jointly with communes to earn the praise of both agriculture and business.

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SOLUTION TO RURAL FIREWOOD PROBLEMS OFFERED

Harbin HEILONGJIANG RIBAO in Chinese 7 Jun 82 p 2

[Article by Engineer Zhao Xitai [6392 6932 3141]: "Speed up Solution to Problems in Energy Use in Daily Rural Life"]

[Text] Severe Shortage of Energy for Use in Daily Rural Life

In recent years it has become harder and harder for the province's rural villages to get firewood. A remark circulates among the peasantry to the effect that "it is not what goes into the pot but what goes under the pot that one has to worry about."

In March 1981, we conducted a survey in Baiquan and Mingshui counties. In neither county did peasant households have firewood for the lunar new year. Shangsheng Commune in Baiquan County has 16 production brigades with a total of 5,450 households of which 11 production brigades containing 3,780 households lacked firewood. Households without firewood for from 1 to 3 months numbered 1,100. Households lacking firewood for 6 months numbered 1,200, and another 1,080 households lacked firewood for from 7 to 8 months. They could do nothing but bear the cold, roll straw into cylinders, gather roots of weeds and grass, and burn ox, horse, or pig dung. Some even shared kang, rooms, and households.

Reasons contributing to this state of affairs were numerous. The steady increase in rural population; the decrease in cultivated land per capita; the increasing decline in the amount of plant stalks and stems each person receives; the steady expansion of the area sown to economic crops (such as sugarbeets and flax) with corresponding decline in output of stalks and stems; destruction of forests and of grasslands when there is nothing to burn, the greater the destruction of forests the more severe the shortage of firewood, and the more the destruction of forests, the greater the shortage of firewood, as well as the beginning in certain areas of soil desertification; a decline in soil fertility; wanton destruction of the ecology; and continuous deprivations of natural disasters are all reasons. Unless ways can be found soon for prevention and control, the consequences will be dreadful to contemplate.

Ways To Solve Rural Energy Problems

1. Change in the Senseless Ways of Using Energy. For a long time, plant stalks and stems have been the major biological source of energy consumed in rural villages. Looked at in terms of rural realities, for a very long period of time in the future stalks and stems and firewood will continue to be the major sources of energy used in daily life. However, at the present time the ways in which energy is used in daily rural life are backward and waste is very great. The thermal utilization rate is only 10 percent. Not only is the energy utilization rate too low, but the nutrient materials (such as coarse proteins and sugars); and the organic matter contained in stalks and stems are burned up, while only some potash fertilizer remains from the nitrogen, phosphate, and potash they contain.

One readily workable and very beneficial way in which to change this form of using energy is to promote use of stoves that economize burning of firewood. When such stoves are used the thermal energy utilization rate from stalks and stems may be doubled. Households that formerly went without firewood for 5 to 6 months each year would have just about enough to burn.

In order to get full use out of stalks and stems, efforts will have to be made to realize optimum energy use methods. Use of stalks and stems as fodder for the feeding of livestock and poultry and then using their dung to produce methane gas, followed by use of the organic nitrogen, phosphate, and potash as fertilizer is one way.

Through such utilization, the thermal utilization rate can reach 60 percent, and nutrient materials and organic matter, nitrogen, phosphate, and potash all are used to the full, plus many agricultural and sideline products are provided humanity.

2. Growing of Firewood Forests. Since ancient times, firewood forests have been a traditional energy source for peasant families. Through the building of firewood forests, not only can tree branches be used as firewood and tree leaves be put into pits to ferment and produce methane gas, but the timber problem can also be partly solved and the ecological balance improved. During the 1960's Mingshui County had a 158,000 mu stand, or an average 4.3 mu per household. Not only did the rural villages have more than enough firewood to burn, but frequently when the weather was right they had bumper harvests year after year. By 1978, however, only 38,000 mu remained, an average of only 0.6 mu per household. There was a serious firewood shortage; drought and water-logging disasters regularly occurred, and lean harvests were reaped year after year.

In Heilongjiang Province there are barren mountains and slopes, ravines, embankments, and four besides [beside roads, ponds, villages, and houses] suitable for the growing of woodlands where the growing of firewood forests should be vigorously encouraged. Hilly regions should be the major places for development of firewood forests, and some barren mountains, wastelands, and unused flatlands around bodies of water should be designated for afforestation, care, and use of individual commune members. Quick growing varieties of trees should

be selected, trees that take only from 3 to 5 years to grow from seeds to mature forests, which would be of real significance in rapidly ameliorating the rural energy shortage.

Zoning Daily Rural Life Energy in Places Lacking Firewood

Un proceeding from China's realities to solve the problems of energy in rural villages, one can only rely on local rural development for local use.

Principal rural energy sources are small hydroelectric power, methane, firewood forests, the stalks and stems of crops, small coal mines, solar energy, wind energy, geothermal energy, and human and animal dung. These are notably regional, and their areas of distribution are very uneven. Consequently, energy resources in individual areas, possibilities for their development and use, and economic effectiveness must be figured out. Zoning of rural energy resources entails centralized on-the-spot investigation of the regional distribution and extent of use of rural energy reserves followed by the demarcation of various kinds of regions to illustrate the energy structure, state of utilization, and existing problems in different areas, and proposal for key ways, in which to further develop and use energy resources. Doing this work well holds major strategic importance for accelerating development of agricultural production and improving the peasants' livelihood.

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IMPROVEMENT OF WATERCOURSE MANAGEMENT HIGHLIGHTED

Harbin HEILONGJIANG RIBAO in Chinese 2 Jan 82 p 2

[Article by Heilongjiang Provincial Water Conservancy Bureau Engineer Liu Jincheng [0491 6930 2050]: "A Good Job of River Course Management to Increase River Flood Prevention Capacity"]

[Text] Historically speaking, Heilongjiang Province has frequently had flood and waterlogging disasters, and last year a flood and waterlogging disaster unprecedented since the founding of the People's Republic occurred. Some streams overflowed to wreak havoc, occasioning definite losses for agriculture and the national economy. Consequently, conscientious management of watercourses and consolidation and improvement in their flood prevention capabilities, and full use and protection of soil and water resources has become a current urgent problem requiring solution.

Heilongjiang Province has more than 1,900 streams large and small. On more than 140 streams have been built nearly 9,000 kilometers of protective dikes and numerous control projects. These flood prevention projects have been relied upon to triumph over six major floods that have occurred in the Songhua Jiang, the Nen Jiang, the Hulan He, the Tangwang He, and the Muling He to insure the safety of agricultural and industrial production and the lives and property of the people.

However, as a result of the influence of "leftist" ideology, standards are low and quality poor for many of the water conservancy projects that have been built. Furthermore, construction was emphasized and management slighted, and watercourse management problems are fairly numerous. One is that because of the building willy-nilly of projects that block the flow of water, the ability of watercourses to handle floods has been reduced. Second, the stability of riverbeds has been damaged. Third, flood prevention projects have been seriously damaged. Fourth, pollution of river water is serious. Unless the aforesaid problems are solved with all possible speed, agricultural production and smooth building of the two civilizations [material and spiritual civilization] will inevitably be impaired. Should fairly large flood waters suddenly occur, they might easily overflow to bring disaster, causing great damage in every way.

In order to guard against possible trouble, watercourse management must be buttressed. Most important at the present time is attention to the following several tasks:

1. Strengthening of centralized planning and management of water resources and watercourses on a river basin basis. Watercourse management touches on a wide area and numerous sectors. Needed is the establishment on the basis of the area affected of a centralized management organization responsible for watercourse control, flood prevention, development and use of water and soil resources, and other pertinent technical and professional direction.
2. A thorough clearing away of obstacles. Because of the country's present financial and material circumstances, in the short term river flood prevention will depend largely on existing projects and facilities and on the use of the movement and storage capacity of watercourses themselves. Therefore, complete clearing away of obstacles within watercourses to enlarge the section through which flood waters move is a major measure for improving drainage conditions and improving capabilities to move flood waters. All jurisdictions should resolve to do a thorough job of removing obstacles.
3. Strengthening of management of existing flood movement and flood storage areas. Control projects exist on the major rivers of the provinces, and during the high water season, these are relied on largely for the regulation of flood waters in flood water movement and flood water storage areas. In order to assure flood prevention safety on rivers, enclosing embankments, houses, industrial plants, and highways may not be built carelessly in flood movement and flood storage areas, nor can there be dumping of mine tailings, or refuse so that the capability of watercourses to move flood waters and to store flood water will be maintained. When necessary, temporary flood water storage areas may be designated, making minor sacrifices to insure major interests.
4. Strengthening of project management. Attention must be given to the maintenance and repair of existing projects and facilities. Destruction of river embankments, and river bank protection work, and the denuding and wanton felling of woodlands that protect embankments is not to be permitted. When illegal destruction is discovered, units concerned should deal with it severely at once.
5. Strengthening of the legal system for good management of watercourses. Watercourse management requires rules and regulations and a system of personal responsibility. Only through legislation is it possible to be able to assure scientific management of watercourses. Regulations on watercourse management have to be formulated so that laws may be used to regulate waters, and so that management is done in accordance with law.

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RESEARCH RESULTS ON EARLY WEANING OF SHOATS PUBLISHED

Harbin HEILONGJIANG RIBAO in Chinese 14 Jun 82 p 1

[Article: "Scientific Data Obtained on Feeding Standards For Shoats Weaned Extra-Early. Animal Husbandry Research Gains New Results Under Direction of Professor Xu Zhenying. [6079 2182 5391]"]

[Text] Scientific data has been obtained on nutritional requirements and feeding standards for shoats that have been weaned extra-early from the time of birth until they weigh 20 kilograms (from 0 to 60 days old). This research has been under the direction of China's famous livestock expert and Northeast Academy of agricultural Sciences professor, Xu Zhenying. This is an important finding in livestock research that fills a gap in the formulation of a set of complete feeding standards for live hogs.

China's research on techniques for the early weaning of shoats began in 1980; however, no scientific data had ever been obtained on nutritional requirements and feeding standards for shoats from the time of birth until they weighed 20 kilograms.

Professor Xu Zhenying had formerly done this kind of research work. This particular experimental research began in 1981, and participants in the research included Zhang Rundong [1728 3387 2767] of the Northeast Academy of Agricultural Sciences, and Zhang Guofan [1728 0948 5400], Zhu Shiqin [4281 0013 0530], Xu Keming [1776 0344 2494], and Zhang Hong [1728 1347] of the Hongxing-long Farm Management Bureau. They divided into three groups 36 heads of Sanjiang white shoats delivered by Caesarean section to carry out experiments on extra-early weaning, which is to say that following birth, the shoats were artificially suckled. Following feeding and metabolic experimental research, nutritional requirements and comparative values for three feed formulas were obtained for shoats weighing from 1 to 5 kilograms, from 5 to 10 kilograms, and from 10 to 20 kilograms. Results showed the following: The entire group of extra-early weaned shoats suckled on each of the three feeding formulas gained weight fairly rapidly and feed consumption was low. The average weight of shoats from birth until 58 to 60 days old was 26.69 kilograms, a 20.8 percent more rapid weight increase than for shoats naturally suckled by sows under normal conditions. Under natural suckling conditions, the number of deaths during the period immediately following birth of shoats (1 to 7 days) was between 25 and 30 percent of the number born; however when

extra-early shoat weaning techniques were employed, the death rate could be reduced to 10 percent, or all could survive. For the group of shoats for which food consumption was low, for each kilogram of weight gain the course protein digested energy consumed was lower than feeding standards for shoats of the same age in the United States in 1979, meaning that under identical conditions of shoat weight increase, food was saved in our experiments as compared with the United States.

The success of this research holds major significance in both livestock research and in live hog production. It can both shorten the time of shoat separation from the sow following birth for an increase in her fecundity rate, and can increase the shoat survival rate. In addition, the success of this research establishes a reliable assurance of pig litters without any specific pathogeny, and blazes a new trail for saving large groups of hogs suffering from illnesses.

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GREATER EFFORTS TO SELL RURAL PRODUCTS URGED

Harbin HEILONGJIANG RIBAO in Chinese 18 Jun 82 p 1

[Article by Commentator: "Broaden Markets for Agricultural and Sideline Products"]

[Text] The Hailun County Poultry Company found markets for greese as far afield as Shanghai, causing rural goose-raising enterprises that were in decline to climb again rapidly. Within somewhat more than a year, the number of geese raised in the county more than doubled. This task was done well and showed the kind of service to agricultural production that the commercial supply and marketing sector should provide, and the warmhearted concern in providing service to the peasants to become prosperous through toil. It also showed the importance of taking the initiative in the marketing of commodities.

The marketing of goods is an extremely important link in our entire socio-economic life chain. Only when marketing channels are open can production achieve its goal of satisfying the needs of people's daily lives. This can, in turn, give impetus to the prosperity and development of production. If markets for goods are clogged, not only can the people's consumption needs not be satisfied, but a curtailment and regression of production must inevitably occur. Consequently, while giving a high degree of serious attention to the development of production, we must give a high degree of serious attention to marketing work. We must coordinate and match the marketing link to production while at the same time bringing into play an organizational and regulatory role in the quality and variety of goods in plentiful supply and short supply.

As a result of the implementation of the party's various agricultural policies, the rural economy has become increasingly lively during the past 3 years, and products resulting from collective economic diversification and products from commune member household sideline occupations, in particular, have become increasingly abundant. In this process, rural business have made very great progress in the work of purchasing and selling agricultural and sideline products. This has played a very great role in advancing the development of agriculture and in making the peasants prosperous through labor. However, it should be realized that in comparison with development of agricultural production, the marketing link is still a relatively weak one. Among the three categories of agricultural and sideline products that collectives and commune member families produce, some are regularly hard to market. One of the main reasons is that some comrades in the rural business sector have a weak concept

of production and do not devote sufficient efforts to organization and direction of production. They often do things in accordance with outmoded and narrow market requirements, and they are unable to take the initiative in conducting investigations far and wide to understand diverse consumption needs in far-flung places. Solution to this problem requires that comrades in all rural business departments and units establish a strong spirit of service to agricultural production and of service to the broad masses of peasants to become prosperous through labor, take full initiative in their work use, their brains, expand their horizons, stride along on both legs, understand all aspects, understand needs of markets everywhere, widen markets for agricultural and sideline products, and use every effort to overcome work difficulties and create convenient conditions for the sale of agricultural and sideline products for the peasants. In reality, despite the very great increase during the past few years in products of agricultural economic diversification and in commune member household sideline products, looked at in terms of the overall needs of the country as a whole, quantities have not been large and still remain small. Were our sales efforts to be like those of Hailun County in the selling of geese, which linked consumers and producers, we would not have to worry about inability to sell. Of course, in both economically diversified and commune member household sideline production, diligent efforts have to be made to organize and readjust to overcome blindness in production that is not in accordance with needs, but this is by no means the problem in most varieties of products. For most varieties of products the problem is still greater production and greater sales.

Certain agricultural and sideline products cannot be sold at once for various subjective reasons unrelated to sales promotion work. These include lack of convenient transportation, shortage of storage facilities, and insufficient processing capacity, etc. Problems in these regards can also be solved with increased effort. In fact, Heilongjiang Province has already taken some effective action to solve these problems, and now what is required is to better carry into effect the measures that have been decided upon. This relates not only to the development of agriculture but to development of the entire national economy as well. It is the common responsibility of all, and all levels of leaders and all sectors of the national economy should genuinely shoulder this responsibility.

Development of rural commodity production is only just beginning. With the bringing into play of the full power of party policies, greater future development will inevitably be greater. We should fully realize this trend and take action in advance to strengthen the marketing link for agricultural and sideline products in every way so that rural business work will meet the new circumstances in development of the rural economy.

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RUSH SOYBEAN PLANTING COMPLETED IN ONE STATE FARM AREA

Harbin HEILONGJIANG RIBAO in Chinese 23 Jun 82 p 1

[Article: "Entire Management Bureau Rush Plants 2.5 Million Mu of Soybeans. Wins Victory in Support to Jiansanjiang in Fighting Disaster by Rush Planting"]

[Text] News of victory has been sent on the battle at Jiansanjiang organized by the Provincial Farm Administration to fight disaster through rush planting. Between 1 and 20 June, the entire management bureau rush planted a total of 2.54 million mu of early ripening varieties of soybeans. This amounts to 89.5 percent of the total area sown to soybeans under the management bureau's jurisdiction, and the planting of 750,000 mu more than the planned quota before the battle was joined. The entire state farm and land reclamation area sowed 24.64 million mu of grain and pulse crops for overfulfillment of plan.

Because of serious waterlogging of fields on the 12 farms under the jurisdiction of the Jiansanjiang Farm Management Bureau, sowing could not be done. At the end of May the Provincial Farm Administration decided to mobilize people and horses from everywhere in the state farm and land reclamation area to do battle, which resulted in a reversal of the war situation. For more than 20 days, the commanders locked in battle in the five management bureaus of Baoquanling, Beian, Jiusan, Nenjiang, and Suihua fought with one heart and one mind, closely coordinated, and launched attacks night and day, despite fairly arduous working and living conditions, to complete their mission and win victory. In the course of the battle, an overwhelming majority of motor vehicle units worked in shifts for more than 10 hours daily, and some motor vehicle units put in as many as 23 hours each day. Government organizations, materials, and health departments at all levels operated round the clock without let up, waging war night and day. The Haerbin and Qiqihaer railway bureaus and the Provincial Shipping Bureau as well as Hejiang Prefecture and Tongjiang, Sunke, Jiayin, and Fuyuan counties also energetically supported movement of machinery and seeds, thereby assuring smooth progress in the battle throughout the state farm and land reclamation area. Today the broad masses of cadres and masses in the Jiansanjiang Farm management Bureau's area of jurisdiction are determined to continue unremitting efforts to consolidate the fruits of this victory, to conquer weed growth, and assure sturdy seedlings to win a relatively good harvest this year.

On 21 June, the Provincial Farm Administration held an awards ceremony to celebrate victory at Honghe Farm at which commendations and rewards were handed out to advanced motor vehicle units and persons who had come to notice during the battle. On the following day, the generals who commanded the battle in the five management bureaus set out on journeys and returned with honors.

PROVINCIAL NOTICE ISSUED ON AUTUMN HARVEST

Xian SHAANXI RIBAO in Chinese 6 Jul 82 p 1

[Article: "Provincial CCP Committee and Provincial Government Yesterday Issued an Urgent Notice to All Jurisdictions To Achieve an All-Around Bumper Autumn Harvest"]

[Text] Yesterday, the Shaanxi Provincial CCP Committee and the Shaanxi Provincial People's Government issued an "Urgent Notice on Achieving an All-Around Bumper Autumn Harvest" to all prefecture municipal, and county CCP committees, all prefecture government administrative units, all municipal and county governments, the Provincial National People's Congress Standing Committee party organization, the Provincial Military Region CCP Committee, the Provincial Court, the Provincial Procuratorate party organization, all departments and commissions of the Provincial CCP Committee, all commissions, offices, departments, and bureaus of the provincial government, and provincial people's organizations at all levels. The complete text is as follows (not otherwise published):

This summer the agricultural production situation in Shaanxi Province is very good. The further stabilization and perfection of production responsibility systems, the arousal of the two enthusiasms, plus fairly timely rains brought a bumper summer harvest of grain and oil and promoted development of economic diversification and industrial sideline production. In most prefectures the summer harvest has been virtually completed by now, so CCP committees and the government at all levels must promptly shift the focus of rural work to autumn production, rapidly start an upsurge to win achieve all-around bumper autumn harvest, and aim for all-around overfulfillment of this year's agricultural production plans. It is in this connection that the following urgent notice has been prepared.

1. Persevere in a program of "positively no relaxation in grain production while actively launching economic diversification." Cadres and the masses must be indoctrinated in firmly establishing an attitude of achieving a bumper autumn harvest of grain and cotton, and an all-round bumper harvest. They should devote strict attention to autumn grain production. In Shaanxi Province, summer grain accounts for only somewhat more than 40 percent of the total grain production, while autumn grain accounts for almost 60 percent. After a bumper summer grain harvest, it is still necessary to

achieve a bumper autumn grain harvest; efforts cannot be relaxed for the major harvest and the greater figure cannot be ignored. In addition to taking a firm grip on grain production, it is also necessary to launch active economic diversification. This is particularly significant for achieving an all-round bumper harvest in agriculture and for increased collective and commune member family earnings. Lopsided notions about concentrating on the summer harvest and slighting the autumn harvest and about single-crop farming must be overcome. All jurisdictions have to adapt general methods to local situations, make the most of their advantages in the farming industry, the breeding industry, and in the agricultural byproducts processing industries, collectives and individuals rising together, increasing earnings by every available means, and using an increase in the ration economic diversification in agriculture for further equitable readjustment of the economic structure of agriculture. It is necessary to firmly establish an attitude of resistance to disasters to achieve bumper harvests and, in view of the possibility that unfavorable conditions such as widespread or severe disasters may occur this year, to fully prepare against all kinds of natural disasters.

A mass campaign to achieve a bumper autumn harvest should be widely launched. The broad masses of rural cadres and commune members should be mobilized to seize favorable opportunities to wage the battle during July, August, and September to achieve an all-time high in total autumn grain output. Wetlands and plains are the major bases for assuring a bumper harvest despite drought or waterlogging. They must be painstakingly tended to achieve high yields, efforts being made to harvest an additional 50 jin per mu of grain. For drylands, several lines of defense must be established. Where autumn crops could not be planted because of drought, a change should be made to broom corn millet, pulse buckwheat and s-ch crops that have a short growing period. For economic diversification, it is necessary both to tend well the economic crops such as cotton and special forest products, and to energetically raise hogs, cattle, sheep and goats, chickens, rabbits and such livestock, as well as poultry, and to launch other household sideline occupations so that people's earnings will increase by an average of 10 to 20 yuan.

2. We must establish a base of resistance to disasters in order to achieve a bumper harvest. Summer and autumn weather is very changeable. Sometimes there may be drought and at other times waterlogging, both of which pose grave threats to autumn production. All jurisdictions must increase vigilance, fighting drought when it occurs and guarding against waterlogging when it occurs. During the past month or more, the drought situation has been serious in most prefectures. Some places have been unable to carry out autumn planting; in some places sprouting of plants has been difficult; and in some places growth of early autumn seedlings and late autumn seedlings that have just begun to sprout has been checked and some seedlings have died. In places in which the drought is currently serious, every effort should be made to launch work to combat the drought, fighting the drought to sow seeds and to protect the autumn harvest. All kinds of water conservancy facilities should be put to use; management of use of water from reservoirs, ponds, and irrigation ditches strengthened; priorities in water use maintained;

conflicts over water use quickly resolved; solidarity in the use of water, conservation of water, equitable use of water, and scientific irrigation encouraged; and general methods adapted to local situations for small-scale hand watering. In short, every available means should be used to expand the irrigated area. No matter what the form of production responsibility system practiced, all communes and brigades should strengthen centralized management of the use of water. Those who disobey water regulations or damage water conservancy facilities are to be seriously dealt with. Dryland plains and slopes lacking water conservancy facilities should adopt various effective measures to fight drought and preserve soil moisture in order to promote healthy and strong crop growth. At the same time, all jurisdictions should conscientiously put into effect the spirit of the provincial meeting on flood prevention, accelerating the replacement of projects destroyed by water and looking after ailing or dangerous reservoirs and dammed ponds to assure safe passage through the flood season.

3. We must carry out scientific farming of fields and do a good job of caring for autumn crops and special forest products. Tailored care and tailored guidance must be given on the basis of the different circumstances and different crops in wetland, dryland, mountain, and river areas in an effort to achieve all-round balanced increases in output. Where seedlings are missing or the soil has cracked around plants for the late autumn crop, replanting should be done to get full stands. The density of seedlings left standing may be appropriately increased to achieve an equitable plant density. This is the period of vigorous growth, budding, and blossoming for cotton, so individual plant care should be strengthened to assure balanced development of both individual plants and plant colonies. Cultivation, prevention and control of diseases and insect pests, sensible fertilization and irrigation, and timely pruning should be carried out for early, increased and large boll formation. The scientific care of other economic crops and special forest products should also be intensified to assure increased output and earnings. All jurisdictions should devote attention to a group of experimental fields and large-area, high-yield fields in a planned way, combine traditional mass experience and modern scientific techniques, make the most of the role of all levels of agricultural science and technology organizations and of the broad masses of scientific and technical personnel to increase per-mu yields, to set up model fields, and to give incentive to open field production. They should actively promote responsibility systems whereby techniques are linked to output, making sure that quotas are reasonable, measures to be taken are specific, and rewards and penalties are honored.

4. Leadership of autumn production must be genuinely strengthened. All levels of CCP committees and government should diligently put into effect the views of the Provincial CCP Committee on the arrangement of work during the last half of the year, making autumn production their central concern, and making all-round arrangement for all work to be done. All levels in all jurisdictions may, in accordance with concrete circumstances, institute guidance for work in individual areas, on individual tracts, and with individual divisions of labor. Principal leadership cadres at all levels should go down to the production frontlines to understand the circumstances

and solve new problems. They should take in hand the implementation of various agricultural policies, further stabilize and perfect various forms of production responsibility system, arouse the two enthusiasms, emphasize attention to good centralization, with contracting of actual tasks in the system of "double contracting" [the system of fixing output quotas based on households, and the system of peasant households assuming full responsibility for task completion], devote great efforts to the stabilization and perfection of systems whereby production is linked to the workforce and where there is management of fixed quotas, and conscientiously solve existing problems. Major efforts should be devoted to research on scientific agricultural techniques and their promotion, the emphasis being gradually shifted in this direction to learn and apply scientific techniques to advance development of production. There should be widespread launching of competitions for bumper output, making the most of the leading role of skilled production hands and labor models; conscientious revival and reorganization of grass-roots farm science stations and teams; intensification of technical training; promotion of the fruits of scientific research; and improvement in levels of scientific farming. All trades and industries should conscientiously and resolutely use every available means to support agricultural production, contributing their strength to increased output and increased earnings from the autumn harvest. Agricultural departments should acquaint themselves fully with realities and provide practical guidance. Finance and trade departments should vigorously work to do a good job of transporting and supplying materials used in agriculture and industrial goods for the countryside, and of purchasing agricultural byproducts. They should make farm loans available promptly in active support of collective and individual efforts to carry on production. Industrial departments should strive to produce the chemical fertilizer, pesticides, and farm implements that agriculture so urgently needs, and other industrial goods in severely short supply in rural villages. Communication and transportation departments should make priority arrangements for hauling of goods to support agriculture. Electric power departments should equitably arrange the use of electricity in agriculture to assure fulfillment of the urgent needs of production.

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BRIEFS

WIDESPREAD RAINFALL--It rained continuously in Shaanxi Province from 7 July until the early morning of 9 July, the largest amount of rain falling in Yulin and Hanzhong Prefectures. Except for Dingbian and Jingbain Counties, all of Yulin Prefecture's 12 counties received more than 20 millimeters of rain. In Hengshan, Jiaxian, Mizhi, Wubao, and Suide Counties, rainfall averaged 40 to 70 millimeters. In Shenmu and Zizhou Counties, rainfall was 97 and 112 millimeters respectively. In some counties of Hanzhong Prefecture and in Hingqiang and Liuba Counties, rainfall was fairly great as well, between 30 to 40 millimeters falling. In Yang County, 77 millimeters fell. In Yan'an Prefecture and in Pucheng and Heyang Counties in Weinan Prefecture, in Bin County in Xianyang Prefecture, in Feng County in Baoji Prefecture, and in Shiquan and Hanyin Counties in Ankang Prefecture, rainfall ranged from 10 to 20 millimeters. However, in most central Shaanxi prefectures and in Shangluo and Ankang prefectures, the rainfall was relatively light, amounting to less than 5 millimeters. The distribution of this rainfall throughout the province was very uneven, but in counties where the amount of rainfall was fairly large, it was extremely helpful in combating drought to protect the autumn harvest. [Text] [Xian SHAANXI RIBAO in Chinese 10 Jul 82 p 1] 9432

RAPESEED PROCUREMENT OVERFULFILLMENT--As of 6 July, Shaanxi Province had overfulfilled its rapeseed procurement quota by 80 million jin and half a month ahead of schedule. The province's rapeseed production bases of Hanzhong Prefecture and Ankang Prefecture each overfulfilled their quotas by 40 percent. Throughout the province a group of peasant households that have sold more than 1,000 jin of rapeseed to the state have appeared. The places that have yet to fulfill quotas are presently giving strict attention to sales to the state, and in the places that have fulfilled quotas masses are continuing to sell surplus oil. [Text] [Xian SHAANXI RIBAO in Chinese 10 Jul 82 p 1] 9432

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ANNUAL HOG SALES PROBLEMS AIRED

Jinan DAZHONG RIBAO in Chinese 4 Jul 82 p 1

[Text] Recently the Provincial Commerce Department, Finance Department, and Price Bureau jointly issued a notice requiring commercial departments at all levels dealing in foodstuffs to use expansion of pork sales as a major measure for solving the difficulties of the masses in selling hogs.

Measures for expanding pork sales are as follows: Separate sales of fat and lean pork (this measure to be instituted mainly in cities). In counties overstocked with hogs, production teams should be encouraged to slaughter hogs themselves, dividing them for consumption, or the food stations may do the slaughtering and marketing for them. Transfers from surplus to shortage area. Commercial departments dealing in foodstuffs in places lacking hogs may go to counties having a good supply of hogs to buy hogs directly from households raising them, haul them back, butcher them, and sell the pork. In order to encourage such transfers and to solve problems with losses resulting from hauling and marketing, provincial finance and revenue departments have agreed to exempt live hog procurement and marketing links from payment of industrial and commercial taxes up until the end of August. In addition, the notice called upon all jurisdictions to conscientiously clear out their cold storage lockers, to stack produce in them in an orderly way, to empty them of cold storage items that should not be kept, and to clear space so as to be able to increase the procurement and holding in cold storage of more pork.

Both Ji'nan and Qingdao adopted the principle of premium price for premium quality, separating the lean and the fat pork, and supplying separate cuts of lean pork, pork from which fat had been trimmed, and fat pork. In addition, they continued to supply the "centrally supplied pork" at the formerly retail listed price. Cut up pork prices rose from the prevailing 1.23 yuan per jin to 1.35 yuan per jin; fat pork fell from 1.03 yuan per jin to 0.93 yuan per jin; streaky pork fell from 0.82 yuan per jin to 0.75 yuan per jin; and pork from just behind the head fell from 0.68 yuan to 0.60 yuan. Various kinds of spareribs continued to be sold at prevailing prices. The retail price for pork trimmed of fat with bone in was sold at

the same price as the centrally supplied pork with bone removed, i.e. at 1.13 yuan per jin. In this way the overall price for pork was maintained constant. Other cities can follow this method used in Jinan and Qingdao. In the case of counties that had severe drought during the previous period that have large stock of pork on hand, priority should go to making arrangements for state procurement allocations. Integrated meat plants located in counties should actively carry out processing to trim fat and reduce the price for fat to 0.60 yuan per jin, selling it locally. Such lean pork as cannot be sold locally should be sent to cities for sale. In addition to continuing to do a good job of supplying undifferentiated pork, county seats and rural villages are to follow existing regulations to process pork trimmed of fat with the bone in and fat meat, selling the fat and the lean separately. The price for pork trimmed of fat should be based on the prevailing price for undifferentiated pork with the bone in the price being lowered depending on the proportion of fat trimmed and the amount of fat remaining.

Letters to the Editor

[Text] Editor's Note: June and July are the busy seasons for the end of fattening of live hogs and their removal from inventory, and in some of the counties of the province, difficulties have again arisen in the sale of hogs. Recently this newspaper has received letters from various readers that reflect this problem, several of which have been excerpted from publication here. The main reasons for the occurrence of difficulties in selling hogs are overproduction, encumbered channels, and lack of vigorous sales promotion. Between January and May this year, Pork sales in the province declined 20 percent as compared with the same period last year. More than 600,000 fewer hogs were sold, showing that much leeway exists for improvement in the work of buying and selling live hogs.

Right now the weather is sweltering, and some people have urgent need to sell off their hogs. Departments dealing in foodstuffs ought to have a spirit of high responsibility toward production and toward the masses, and strive to expand sales of pork so that sales will stimulate purchases, thereby solving the difficulties of the masses in selling hogs while solving, at the same time, the difficulties some places have in getting meat to eat. Live hog production and procurement is an important matter with ramifications for agricultural production and the people's livelihood. Rural party and government leaders at all levels should be extremely attentive to this matter, regularly concern themselves with it, regularly study it, regularly look into it, and do all possible to solve this problem.

Comrade Editor:

Energetic efforts on the part of the state during the past several years to support commune member development of hog raising endeavors have thoroughly stirred the enthusiasm for hog raising of the broad masses of peasants, and the number raised has steadily increased. Statistics show that in Yishui County the number of live hogs in inventory has climbed from 270,000 head in 1978 to the present more than 350,000 head. Accompanying the rapid development of live hog production has been an ever increasing contradiction of production being greater than sales, and peasant cries of "difficult to sell hogs" have also reached new highs. Every summer, in particular, numerous peasants worry about their inability to sell their fattened hogs. We believe that the main reason for present peasant difficulties in selling hogs is that flow channels are encumbered with the result that frequently one place has much pork while it is impossible to buy pork at another place. Not long ago, Yishui County had too much pork and its cadres, staff and workers twice ate "patriotic pork," while in the Linyi County seat, just 200 li distant, pork was in short supply, and whenever it appeared in markets, it was bought up entirely. Why could transfers not be made from one place to another within the prefecture? We call upon relevant departments to diligently study and solve new problems that appear in live hog production, procurement, and marketing work, and to open, under guidance of the state plan, channels of flow. Food departments should change their style of doing business, set up more network outlets, expand sales, and use sales to spur procurement. We believe that if only all departments take every possible action peasant difficulties in selling hogs can be solved.

Xiang Yujie [4161 3768 2638]

Comrade Editor:

Right now is the busy season for removing fattened hogs from inventory. Here in our village of somewhat more than 300 households, more than 150 head of fattened hogs are waiting to be sold, but the food station says it cannot accept that many, and commune members cannot market them by themselves. Many commune members say: It is hard to feed hogs, and even harder to sell them. We hope that departments concerned will take effective action to solve this problem of peasant difficulties in selling hogs with all possible speed.

Houshan Production Brigade, Yuangezhuang Commune, Mouping County

Chu Chuanyang [0443 0278 3152]

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CSI: 4007/501

ADVANCES IN FOOD PROCESSING REPORTED

Jinan DAZHONG RIBAO in Chinese 4 Jul 82 p 1

[Article: "Results Good From Continuous Production to Marketing by Jinan Food Industry. For Past Half Year City's Food Production Capacity Has Expanded, Output Has Increased, Varieties Have Become More Numerous, Quality Has Improved, and the Market Supply Situation Has Clearly Become Better"]

[Text] Editor's Note: Clear results have begun to show in the continuous production to marketing by Jianan City's food industry.

Food industry production is closely related to the people's livelihood. A good job of food production and accelerated development of the food industry is a common desire and demand of the broad masses of people. Formerly, because of the separation of industry and commerce, production and marketing were disjointed, so the food industry's output was low and quality poor; development was slow and very much unable to meet requirements for constant improvement in the standard of living of the masses. In restructuring the management organization of its food industry, after instituting continuous management system from production to marketing, Jinan City pretty well solved some contradictions and shortcomings in food industry production. This provides some good methods that may be borrowed for development of the food industry.

During the past half year since the Jinan Municipal Food Production and Marketing Compa-y instituted a continuous production to marketing management method, output of foodstuffs has increased, varieties have become more numerous, quality has improved, and market supply has taken a clear turn for the better.

Since its founding in November last year, the Jinan Municipal Food Production and Marketing Company has focused on the backward production, technological weakness, the splintered leadership, and the decentralized management of the food industry. It has spotlighted the two major areas of expansion of production capacity and improving product quality, taking the following several actions:

(1) It has taken the path of "tapping potential, converting, and amalgamating, the state owned and the collectively owned, and the urban and the rural all rising together. By tapping potential is meant the tapping of potential within enterprises through their reorganization and changes in production conditions, increasing colors, styles, and varieties, improving product quality, and reviving traditional name brand products. By conversion is meant the selection of some enterprises that have not fulfilled their quotas for conversion, converting them, in conjunction with industrial reorganization, to food industries to open new production capacity. By amalgamation is meant use of suburban commune and production brigade, and district and street collective enterprise plants, equipment, and workforces to organize diverse forms of integrated enterprises to expand production of popular foodstuffs and foodstuffs that fill gaps. This amalgamation has followed the principles of keeping the enterprises small, keeping them collective, and having a retail outlet at the front of each plant, with production and marketing companies using the contract system for planned, professional, and responsible management. For the past half year, they have exercised responsible management of the production and marketing of pastries, candies, cold drinks, snacks, and fruits. They have carried out a tapping of potential and improvement of six enterprises, have provided for the conversion of five enterprises to the production of foodstuffs, and have operated 33 integrated enterprises, causing production capacity to expand almost fivefold, and styles, colors and varieties to increase by more than 40.

(2) They have devoted efforts to improvement of quality and to the making of name brand foods. For the past half year, they have energetically revived and developed traditional products, and have developed and produced new varieties with a local flavor to satisfy consumer needs in many regards. People have been sent out on 18 individual trips to invite 11 technicians from Shanghai and elsewhere to solve a number of technical difficulties. They have run technical training classes and various kinds of specialized training classes to train more than 250 technical mainstay cadres of various kinds. In addition, they have hired old retired workers and engineering technicians with superb skills from throughout the city to organize technical advisory teams. They have had them act as staff officers in the training of apprentices, and in the development of noted fine quality foodstuffs. Within only 3 months, they have come up with more than 30 suggestions for improvements, they have helped revive 22 varieties of traditional and brand name products, and have introduced and innovated 28 varieties of products, with the result that food production has become diversified, products have a distinctive flavor, and packaging has taken on a gift wrap appearance.

(3) They have based themselves on the longterm, have made the most of strengths, and have established bases for the consistent supply of raw materials. Suburban Jinan communes and production brigades have abundant agricultural byproduct resources, and a vast scope exists for development of foodstuff industries. After establishment of the production and marketing company, it followed the principle of taking as a key link the doing of a good job in using existing resources while at the same time giving attention to the fostering of new resources; of taking development of local special products as the key, while giving attention to the opening of rar materials

bases for popular foodstuffs; of taking development of artificial breeding as the key, while giving attention to development of wild resources for use; of taking organization of local processing as the key, while giving attention to doing a good job of having raw materials go directly into the city, with the planned signing of contracts with counties, communes, and brigades, the opening of joint city and countryside enterprises to give impetus to rural economic diversification and development of processing industries for the very rapid establishment of a group of raw materials bases to create good conditions for the steady development of the good industry.

The Jinan Food Processing and Marketing Company is both an executive management organization and an economic organization. It both manages production and manages raw materials supply and product marketing. Thus it has broken through the rigamarole that has fettered some productivity and has enlivened production and marketing. This year, among the 13 enterprises that are directly subordinate to the company, and among the more than 30 joint enterprises that the company manages, a new atmosphere has occurred in which they have vied to understand market needs, to improve their service attitude, to raise operating standards, to improve product quality, and to increase colors, styles and varieties. At the food fair held in April and the children's food fair held in June, all sorts of pastries, candies, drinks, snacks, and fruit manufactures bloomed like a hundred blossoms to dazzle the eyes. The masses said happily, "Jinan's food markets are beginning to look like something to taste like something."

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CSO: 4007/501

AGRONOMIST DISCUSSES PROBLEMS OF COTTON PRODUCTION

Jinan DAZHONG RIBAO in Chinese 6 Jul 82 p 2

[Article: "Strategic Problems in Shandong's Development of Cotton Production Explored--a Visit with Cao Boqiang [2580 0130 1730], Ranking Agronomist, Shandong Provincial Academy of Agricultural Sciences"]

[Text] During the period when the Huang-Huai-Hai Plains Agricultural Development Academic Symposium was in session in Jinan, the correspondent paid a call on the conference's deputy secretary, Comrade Cao Boqiang, and asked him to talk about strategic problems in Shandong Province's development of cotton production. Cao Boqiang is the ranking agronomist at the Shandong Provincial Academy of Agricultural Sciences and secretary of the Shandong Agriculture Society, and is an expert who has been engaged for many years in the study of cotton production.

In discussing the province's prospects for development of cotton production, Cao Boqiang said happily that development of cotton is an economic strength for Shandong Province. During the past 3 years, cotton production in the province has developed by leaps and bounds, demonstrating the tremendous role of this strength, and the potential is still very great. Further development of this strength is not only an urgent need for the broad masses of cotton growing peasants, but it is also an inevitable trend in the economic development of the province. Exploration of strategic problems in achieving further development of cotton production must be based on the principle of coordinated scientific and technical, economic, and social development, with the implementation primarily of an intensive development program. In this connection, he spoke first of the problem of further perfection of the distribution of cotton fields. Comrade Cao Boqiang said that as a result of several years of readjustment, the province's cotton field area had expanded from 9.4 million mu in 1978 to more than 14 million mu in 1981, and further expansion of the area would occur this year. Right now there is a fair amount of discussion about how to further improve and readjust cotton field patterns. He expressed the view that the ratio between grain and cotton crop areas is closely related to the production level for grain crops, and that the basic point of departure for handling the relationship between these two is to adhere to cotton growing areas growing their own grain to achieve self-sufficiency or substantial self-sufficiency. Under

current production levels, the province's economic crop area should amount to about 30 percent of the total cultivated land. In Shandong Province, 80 percent of all cotton fields are concentrated in the four prefectures of Dezhou, Liaocheng, Huimin, and Heze. In these prefectures, there is about 2 mu of land per capita, 20 percent more than the average number of people engaged in agriculture per mu for the province as a whole. However, per-mu grain yields are lower than provincial levels, and the potential for increased yields is fairly high. Considered in terms of developmental strategy, the ratio of cotton fields could be correspondingly somewhat larger. Recently a 2-year survey of production and comparative analysis of 37 cotton-growing counties was conducted, and the results showed that by proceeding from adherence to the principle of cotton growing area self-sufficiency, or substantial self-sufficiency, in grain production, the cotton field area in key cotton-producing areas could be about 40 percent of cultivated land, and that in key cotton-producing counties, it should not exceed 50 percent. Considered in terms of cotton field distribution per se, there is still the problem of a proper concentration. Widely scattered cotton fields do not make for the strengthening of leadership and do not favor the spread of advanced techniques. Arranging cotton fields on the basis of soil and climatic area that lend themselves best to the growing of cotton is the most fundamental foundation for improving cotton field distribution. With the rapid expansion of cotton fields in the province, the arrangement of some cotton fields is not entirely suitable. This problem is very deserving of attention.

Comrade Cao Boqiang said that cotton field distribution must be achieved in conjunction with the breeding of fine varieties, with their propagation and spread, and with improvements in the farming system. The growing season for the cotton-growing areas in the southwestern part of the province is about 15 to 20 days longer than in northern Shandong; consequently, both the southwestern and southern Shandong cotton-growing areas might suitably develop some intermediate ripening varieties, and they might properly develop some cotton-growing areas where wheat and cotton are grown in a two-crop system in order to ameliorate the conflict between grain and cotton. Northern Shandong cotton-growing areas are suitable for the breeding and promotion of some early maturing varieties tolerant of salinity and alkalinity.

Next, Cao Boqiang spoke about the problem of increasing cotton field fertility. He said that improvement in cotton field fertility had already begun to be recognized by people, and that fertility of Shandong Province's cotton fields had already begun to improve. However, in terms of cotton production developmental strategy and the need for sustained, consistent and high yields, further effective actions had to be taken for continued vigorous nurturing of cotton field fertility. For large areas, improvement in cotton field fertility is a long-term strategic task; it is not something whereby results can be seen very quickly. Action has to be taken steadily and formed into a system for consistent improvement. Nurturing the fertility of cotton fields must follow the principle of "using the land and nurturing the land and using cotton to nurture cotton," organic fertilizer being most important and chemical fertilizer being ancillary for gradually changing the present tendency of relying primarily on chemical fertilizer to increase output,

to the neglect of organic fertilizer, as well as the tendency to emphasize increased yields during the current season to the neglect of the long-term and of methods for improving economic benefits in an allaround way. Cao Boqiang said that people do not yet fully appreciate the full use of cottonseed cake for development of the livestock industry or the accumulation of stable manure to improve soil fertility. At the present time, most cottonseed cake is used for direct fertilization of the fields with only a miniscule amount being used for the feeding of livestock, and this is a very great waste. Experiments have shown that when cottonseed cake is applied directly to the ground, crop use of its nutrients is very low: its nitrogen utilization rate is only 30 percent and the remaining nitrate nutrients are wasted. Were it to be used first for the feeding of livestock and the resulting manure applied to the ground, not only would an increase in protein feed for the livestock result in a saving in grain and a moderation of the conflict between grain and cotton in cotton growing areas, but the livestock industry could also be vigorously developed and the quality of organic fertilizer improved. At the present time, detoxification of cottonseed cake has been substantially solved, and energetic efforts should be made to use it as livestock feed. If this is done, it can be predicted that the province's present cotton bases will simultaneously become livestock bases, with the promotion of tremendous increases in both grain and cotton output following.

The third problem about which Cao Boqiang spoke was the strengthening of scientific research to improve economic benefits. He said that following the Third Plenary Session of the 11th Party Central Committee, the state had instituted policies to encourage development of cotton production. Economic benefits for cotton-growing peasants greatly increased, and this played an important role in the development of cotton production in Shandong Province. However, it must be realized that the current increase in benefits to cotton-growing peasants is attributable, to a very great degree, to price policies, while socioeconomic benefits from the cotton-growing industry per se have yet to be fully realized. He pointed out that in order to increase socioeconomic benefits from the cotton industry, from both a current and a long-range standpoint it is necessary further to strengthen scientific research, to increase cotton growing standards, to lower production costs, and to launch comprehensive utilization of cotton byproducts. Our former research on cotton techniques lay particular emphasis on individual techniques for increasing yields, while increases in cotton output were not commensurate with the value of the material and labor resources invested in cotton fields. This caused a rise in costs and a decline in net earnings. A solution to this problem currently lies in taking a firm hold on the popularization of existing cotton growing techniques. In the future it will be necessary further to intensify scientific research and to improve scientific cotton growing standards. The popularization of scientific techniques requires, first of all, adapting effective cotton-growing techniques and analyzing different levels of production to compile complete technical growing data that are then disseminated in various ways to the broad masses of cotton-growing peasants for application to production, so as to cut down on blindness in the use of technical measures for a saving in manpower and material resources, a lowering of costs, and an increase in per-mu yields. Long-range

thinking requires the enhancement of basic research as well as research on comprehensive techniques for increasing yields. In view of Shandong Province's lack of water resources, insufficient energy, and high cotton field ratio, effort should be centered on the key matters of increasing the low energy utilization rate, taking firmly in hand the nurturing of soil fertility, scientific use of fertilizer and water, all-around prevention and control of diseases and insect pests, and such problems through organization for a concerted attack. A series of optimum farming techniques applicable to different cotton-growing areas must be gradually explored on the basis of the distribution of different varieties.

In talking about the processing and comprehensive use of Shandong Province's cotton products, Cao Boqiang said definite capabilities exist in the form of equipment and techniques, and crop patterns are also fairly equitable; however, they are very ill suited to the state of development of cotton production. The present situation is one in which the state is unable to recover a substantially large portion of cotton byproducts; large quantities are totally wasted; for those items that are used technology is backward, output is small, and costs are high; many ways of using them have not been exploited, such as the use of cottonseed cake in medicines, in the production of mixed livestock feeds, as a high protein food, and the use of cottonseed oil in the food industry. Research has just begun on some of these applications, but no one is researching most of them. This represents a very great potential, and tapping of this potential has become an inevitability in cotton production. In this regard, it is necessary to take the path of joint endeavors by state-owned enterprises, communes and brigades, and cotton-growing peasants, to expand processing capacity and to improve processing quality in order to recover a comparatively large amount of cotton byproducts. In addition, it is necessary to launch scientific research on areas not being exploited on the basis of realities in Shandong Province for gradual expansion of the scope of comprehensive utilization. Regarding this problem, Cao Boqiang expressed the view that there are currently two tasks meriting special attention. The first is acceleration, strengthening, and improvement of the scientific corps for improvement of production and comprehensive utilization of cotton. At present, Shandong Province has few people engaged in cotton research and the promotion of techniques, and the aging of personnel and outdatedness of their knowledge increases daily. Many research projects cannot be launched. Meanwhile scientific and technical personnel engaged in the processing and comprehensive use of cotton amount to only 0.0025 percent of the total number of employees in this system. Consequently, intensified development of intellectual resources and the adoption of various ways to strengthen and improve this corps is extremely important. The second is perfection of the scientific research system for cotton production and processing for use, departing from the wasteful duplication of scientific research projects and no one working on some tasks. This requires a combination of conscientious scientific and technical, economic, and social planning. Finally, Comrade Cao Boqiang suggested that provincial departments concerned coordinate the scientific research forces in all quarters, formulate "triple combination" plans, take firm hold of key topics, and organize a coordinated attack so that the limited manpower, material, and financial resources may play a comparatively large role and promote the emergence in Shandong cotton production of an inspiring new situation.

WAYS TO DEVELOP WESTERN SICHUAN PLAIN AGRICULTURE EXAMINED

Chengdu SICHUAN RIBAO in Chinese 1 Jul 82 p 2

[Article by Sichuan Provincial Science Commission study team: "Exploration of Ways in Which the Western Sichuan Plain Can Develop Agriculture"]

[Text] The Western Sichuan Plain has fertile soil, temperate climate, copious rainfall, developed irrigation, concentrated population, and sufficient workforce; the conditions for development of agricultural production are comparatively superior. Cultivated land in the 30 counties (or districts) of the plain account for 15 percent of the province's cultivated land area, and the agricultural population accounts for 14.4 percent of the province's agricultural population. Each person farms an average of 1.2 mu, on which largely paddy rice, wheat and rice are produced. This is the main production base in the province for commodity grain, edible oil, and hogs.

Since Liberation, great development has occurred in agricultural production on the Western Sichuan Plain. Nevertheless, development has not been rapid, and some major indicators are still lower than the national level. The main factor affecting the speed of agricultural development of the Western Sichuan Plain, apart from past policy mistakes, has been neglect of the role of scientific techniques. Irrational agricultural patterns and one-sidedness in emphasizing certain grains have blocked full use of natural and social resources and have restricted the bringing into play of the multifunctional effects of the farmland ecological system.

Stress on Advantages of Intermediate Rice Production and Appropriate Expansion of Economic Crops

The Western Sichuan Plain is a famous rice-growing region in China in which paddy rice output in normal years accounts for about 80 percent of the region's grain production for the year as a whole. However, since the 1960's, as a result of excessive expansion of wheat and barley production, followed by the blind development of double rice crops for a period of time, the advantages obtainable from intermediate rice were damaged. In fact, natural conditions on the Western Sichuan Plain are extremely favorable for intermediate rice production. Representative sampling carried out in Wenjing Prefecture shows that for each worker put into paddy rice production, grain output is 23.8 jin, which is 54.5 percent higher than for wheat. For

each yuan worth of chemical fertilizer invested, 40.8 jin of paddy is produced, benefits from the investment in fertilizer being 126.7 percent higher than for wheat, and the cost per jin being lower. The net increase in value from paddy rice is 61.60 yuan per mu, 26 yuan and 40.40 yuan higher than for wheat and corn respectively. The economic benefits from intermediate rice are best and the potential for increased yields is great. In 1980, eight counties on the Western Sichuan Plain farmed a total of 2.85 million mu of paddy rice, which accounted for 28.2 percent of the rice-growing area on the Western Sichuan Plain, yields averaging 827 jin per mu. If Western Sichuan Plain paddy rice yields had reached this level or just slightly higher during the past several years, the annual incremental rate of increase for paddy rice would have been 3 percent.

For a long time the Western Sichuan Plain has been in the habit of growing economic crops during its winter crop production season. Economic crops such as rape, tobacco, medicinal herbs, and vegetables account for more than one-third the winter crop area. Crop patterns are rational for "raking in grain in the fall and raking in money in the winter." After the 1960's when only grain production was emphasized, the economic crop area was contracted greatly, to the detriment of increases in commune member earnings. Naturally expansion of economic crops was curtailed by grain output, market capacity, scientific techniques, production conditions, and such factors. State plan guidance had to be taken as the key, and blind action avoided. Nevertheless it was possible gradually to curtail the wheat-growing area somewhat by increasing per-mu yields so as to expand the growing of some economic crops. If it had been possible to further increase per-mu economic crop yields, the economic benefits would have been very outstanding.

Development of Agricultural and Sideline Product Processing and Practice of Comprehensive Use

While striving to increase agricultural output, it is necessary to institute all-round processing and use of agricultural and sideline products to improve overall economic benefits from agriculture. During the past several years the Western Sichuan Plain has begun to give attention to this problem and has achieved remarkable results. In 1980 the output value from the processing of agricultural products by 30 counties (or districts) came to more than 1.6 billion yuan, or 58 percent of total output value from agriculture. Nevertheless, the all-round processing and utilization rate for agricultural and sideline products on the Western Sichuan Plain is currently relatively low; the colors, styles, and varieties are few, and continued improvement of quality is required. This means that expansion of the scope of processing is necessary, on the one hand, while development of precision work is required on the other, with steady improvement in processing techniques, increase in product competitiveness, and expansion of markets for products. Not only is it entirely possible to increase the processing value, but the potential is also very great. For example, a ton of wheat flour costs 340 yuan. When made into noodles, vermicelli, and bread, the output value is increased by 17.6 percent, 35.3 percent, and 3.7 times respectively. Each year following the crushing of oil from rapeseed, more

than 300 million jin of rapeseed cake remains. According to measurements made in livestock feeding experiments, the energy derived from the digestion of 1 kilogram of rapeseed is equivalent to that of 0.83 kilograms of corn. The total energy derived from the digestion of rapeseed cake from 30 counties is equivalent to that of 260 million jin of corn, or about one-fourth the corn output of the Western Sichuan Plain. Today, however, only 2 percent is used. Most of it is applied directly to fields, which is an extreme waste. Livestock products from the Western Sichuan Plain are abundant, but the quantity processed is very small and the varieties uninteresting. In the future, it will be necessary to increase the quantities processed and to enlarge the number of varieties. Shifang pressed duck is sold locally at a profit of only 2 yuan; exported it brings 5 yuan. The feathers from 20 to 25 ducks can be processed into a down jacket of high value. One down sleeveless jacket takes 2 liang of down costing 4 to 5 yuan and can be sold abroad for 16 to 19 yuan. The Western Sichuan Plain has many kinds of vegetables and output is high. By vigorously developing vegetable processing, economic benefits can be increased and the conflict between supply and demand during the slack season in vegetables can be moderated. Sizhai and Wanchun Communes in Wenjiang County experimentally produced somewhat more than 100 tons of salty garlic and salty cauliflower for export, thereby increasing their value by more than 30 percent and more than double respectively. Bamboo is very abundant on the Western Sichuan Plain and development of the plaiting of bamboo holds great prospects. In 1980, output value from the plaiting of bamboo in Chongqing County amounted to 5.46 million yuan for a 60-percent profit, each household in the county averaging an increased income of somewhat more than 27 yuan. In 1980, seven [character illegible] in the 13th Production Brigade of Daoming Commune in Chongqing County plaited bamboo with an output value of more than 120,000 yuan, for a fivefold increase in value over the bamboo raw material.

Enthusiastic Encouragement and Support to Peasants for Development of Household Sideline Occupations

Peasant households on the Western Sichuan Plain average in general more than 100 yuan in income from household sideline occupations, of which about 65 percent comes from the raising of hogs, earnings from the farming of private plots and woodland plots amounting to about 20 percent, handicraft plaiting amounting to about 10 percent, and odd-job income amounting to 5 percent. Statistics from 15 counties show that during 1980 peasant purchases of consumer goods averaged 128 yuan per capita, more than 70 percent of which derived from household sideline occupation earnings. Vigorous development of an economy run by the peasants themselves is not only necessary, but its potential is considerable. Private plots in the 30 counties of the Western Sichuan Plain amount to 1.29 million mu, or 8.7 percent of the cultivated land. An additional 7.4 percent lies in raised paths through fields. The area farmed by peasants themselves averages 0.18 mu. Nevertheless, it is still not used to the full. Output value from land that peasants farm themselves amounts to only 20 percent of the output value from sideline occupations, so continued improvement in all-round economic benefits holds great potential that can be tapped. Additionally, the breeding of poultry and small livestock has vast prospects, and development of handicraft products is also worthwhile.

The development of peasant household sideline occupations requires centralized planning and strengthening of state plan guidance. Family sideline occupations may be principally in a single industry or economically diversified for all-round development. The departments concerned should promptly provide fine breeds of livestock and poultry, organize epidemic disease-prevention services, institute scientific management, and link production and marketing through the signing of agreements, relating them to state plans for healthy development.

In the Shortrun, Where Should Attention Be Directed for Development of Agricultural Science and Technology?

Practice has shown that development of agricultural science and technology is related to the large problem of improvement in the agricultural labor productivity rate and to the lowering of production costs, and is the key to peasants becoming prosperous with all possible speed. In order to meet Western Sichuan Plain development needs, in the short run it is necessary to devote attention to work in several quarters, focus on requirements for rice, wheat, oil, and other economic crops as well as the raising of livestock and poultry, emphasize the breeding of fine varieties and experimental research on techniques for growing and raising them, while at the same time studying techniques for processing and using agricultural and sideline products; increasing varieties, sizes, colors and designs; improving quality; and expanding markets.

There must be intensification of technical promotion work, with emphasis on the three "transfers." First, following introduction and experimentation, the fruits of scientific techniques from elsewhere must be transferred to the local area. Second, demonstrations and experiments must be used to transfer to production the fruits of research of local scientific research units. Third, there must be summarization and improvement to transfer the traditional techniques used by peasants rich in experience to the broad masses of peasants. An effective means of technical promotion is to institute technical promotion responsibility systems, encouraging compensation for services, and gradually developing in the direction of specialization and socialization.

Technical training should be intensified, with vigorous efforts exerted in the development of rural intellectual resources. Statistics from a survey conducted in Wenjiang Prefecture show that peasants in the prefecture possessing various kinds of technical skills numbered more than 160,000, or 3.5 percent of the rural population. When those in the rural villages of Chengdu, Jinyang, and Leshan are added in, there are an estimated 300,000 or more. Investigation and research during the past few years has shown that few of them are used. In the shortrun it is necessary to organize technical training, the emphasis going first to nurturing and improving a group of technical mainstay cadres and using them to stimulate the peasants to study and use scientific techniques to give impetus to the development of agricultural production.

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CSO: 4007/505

IMPROVEMENT OF BREEDS OF OXEN REPORTED

Chengdu SICHUAN RIBAO in Chinese 1 Jul 82 p 2

[Article: "Daxian Prefecture Obtains Heartening Results From Fine Breed Oxen; Last Year 23,000 Head of Fine Breed Oxen Were Bred, 10.5 Times the 1978 Number"]

[Text] Dixian Prefecture's work with improved breeds of oxen has won heartening success. Last year the prefecture raised 903,000 head of oxen, an increase of 41,000 over 1978. Fine breed oxen bred numbered 23,000, or 10.5 times the 1978 number, and accounted for 22 percent of the province's 105,000 head. Uncontrolled crossing and random breeding has been stopped, and the poor composition of cattle herds has been improved to a very large extent.

Dashan Prefecture, located in the southern foothills of the Ba Mountains, has more than 14 million mu of grassy mountains and slopes suitable for raising livestock. It has historically been a famed ox producing region. However, constrained by tradition and custom, plus the effects of "leftism," the people took a narrow view of raising oxen for use as draft animals, which seriously impeded development of commodity production.

When the spring freshets of the Third Plenary Session of the 11th Party Central Committee wafted into Bashan, the Daxian Prefecture CCP Committee and government administrative office leaders emphasized emancipation of the mentality and set to rights the position of the livestock industry, placing on their daily agendas the conversion of "grass" into "meat" and improvement of breeds. In 1977, before the province set up pilot projects for superior ox breeds, because Tongjiang County's local breeds of oxen were of inferior quality and did not sell well either in foreign trade or domestically, the County CCP Committee instructed livestock stations and the Foreign Trade Bureau to quickly give attention to improvement of breeds. Leading comrades in these two units went to Beijing where they bought and brought home with them slightly more than 300 doses of superior breed frozen semen. They bred 14 head, four of which became pregnant, all of the calves produced surviving. This was the first time that success had been achieved in improving the province's breed of oxen.

Subsequently, the national Ministry of Agriculture named seven commodity ox base counties in Daxian Prefecture. The province selected five counties in Daxian Prefecture that had run breed improvement pilot projects. Over the years breed improvement tasks had increased and difficulties had increased with them. Some commune members did not believe that frozen semen could be used for breeding, and when those raising animals brought them to be bred, as soon as they saw it was to be artificial insemination, they quickly led them back home. Technical requirements for frozen semen breeding are very strict, but at that time technical capabilities were weak. Moreover, the frozen semen had to be brought from Chengdu, and the liquid nitrogen had to be brought from the bull station of the import farm in Chongqing. Once the railways department mistakenly thought that the liquid nitrogen container was dangerous goods of which transportation was prohibited, and an incident occurred in which the shipper was detained. In the face of these difficulties, under the guidance of CCP Committee and government leaders, employees on the livestock frontline conscientiously and earnestly developed the work of improving ox breeds. Xuanhan County used written materials, photographs and drawings, and lives displays on a 17-commune circuit over a 4-month period, and it is estimated that these were seen by more than 80,000 persons. Pingchang County organized forces to compile more than 4,500 copies of materials, and used wired transmissions and propaganda to educate the masses. During the past several years, the prefecture has secured 985,000 yuan of local public finances and has taken 7 million jin of grain from reserves to launch a livestock raising industry. Since 1979 it has trained a total of 262 insemination personnel and has run technical training classes 33 times. Seven foreign breeds have been introduced to the prefecture, including Simmental, Charolais, Hereford, Angus, Limousin, Shorthorn, and Moleihui [1075 4959 3500]. Frozen semen has been used to breed more than 68,000 cows in order to produce more than 37,000 hybrids, which account for 32 percent of the province's total number of hybrid oxen. In 1980, Bazhong and Xuanhan entered the ranks of the country's 25 advanced counties for fine breeds, and in April last year, the Ministry of Agriculture convened a national livestock work conference in Bazhong County, which was yet another boost for Daxian Prefecture's fine breed oxen work. Since the lunar new year, workers on the frontline of the livestock industry in Daxian Prefecture have exerted greater efforts to carry out technical training early, to prepare materials early, and to begin breeding oxen early, giving further impetus to the work of improving breeds of oxen.

9432

CSO: 4007/505

NEED TO MAINTAIN STRUGGLE AGAINST DISASTERS STRESSED

Kunming YUNNAN RIBAO in Chinese 25 Jun 92 p 1

[Article by commentator: "A Look at the Province as a Whole in Light of Qujing Shows Need For No Slackening in the Attitude of Struggle Against Disasters"]

[Text] This spring Qujing Prefecture was stricken by one disaster after another, including the return of cold in the spring, hailstones, floods, and waterlogging, and some counties also endured long drought. As a result, the early spring harvest of crops sown in late autumn was reduced, and crops sown in spring for fall harvest were seriously affected. However, thanks to the clear-cut attitude of struggle against disasters on the part of all levels of CCP committees and government, the prompt and vigorous actions taken, the proper direction given, and the stability of mass thinking, production proceeded in an orderly way in the face of disasters, and fairly good results were gained. The early spring harvest was painstakingly gathered and threshed, losses being less than had been originally anticipated, and oil-bearing crops achieved substantially increased output. Although rice transplanting got underway late, it proceeded fairly quickly. By about 21 May, more than 1 million mu had been transplanted and rice producing counties had fulfilled between 80 and 90 percent of their transplanting tasks.

A look at the province as a whole in light of Qujing shows that we cannot slacken for a minute our attitude of struggle against disaster in order to achieve bumper harvests. This year's crop to be harvested in early spring started off very well in Qujing Prefecture and a bumper harvest was in sight. Then disaster suddenly struck. Some grassroots level cadres looked at the fields and cried bitterly, not knowing what to do. However, prefecture and county CCP committee leaders kept clear heads. They realized that reduced yields from the early spring harvest were bad, but by no means frightening. What was to be feared was a wavering of confidence in being able to resist disaster and go on to achieve a bumper harvest. They unified thinking from top to bottom, analyzed the disaster situation, sought favorable conditions in an unfavorable situation, and constructed a solid mental defense line in the face of disaster. This defense line was shown to be very important. With this defense line, we could be one with the masses and find various means of countering the disaster. Without this

defense line, we would have been at a loss about what to do or have been weak and powerless or even disheartened, and we would have lost the battle against natural disasters.

If victory was to be won against disaster, in addition to confidence there would have to be some reliable measures to provide assurance. Experience in other prefectures of the province, and the present practice in Qujing Prefecture both demonstrated that a healthy production responsibility system is a most effective measure for mobilizing the masses to join in the struggle against disaster. The masses in Huangnihe Commune in Fuyuan County gleaned 60,000 jin of wheat from fields that had been battered to the ground by hailstones. On the evening of the very day on which the hailstones fell, Banqiao Commune in Luliang County began soaking more seed grain, and cleared away the ice water on the following day. In Yilang County, the masses took rugs and bedsheets from their homes to protect the seedlings from frost and worked all night long. Let me ask: Could this have been done when everyone "ate out of a large common pot?" The Qujing CCP Committee believe that the large numbers of cadres who went into the countryside this year to help perfect the production responsibility systems had a very great bearing on the ability to make big achievements in the current struggle against disaster, and this is a very sensible view.

Disasters inevitably create losses, and this was a fact that had to be faced. But simply shouting the slogan, "no reduction in output in a year of major disasters" is of no help at all in making up for or reducing losses. The method Qujing Prefecture used was as follows. They obtained grain through the use of scientific techniques. When the small seedlings were frozen, they enlarged the area in which seedlings were grown under plastic sheeting to more than 5,300 mu. When the early spring harvest sustained losses, they hastened promotion of advanced techniques for the fall harvest. This year the directional planting of rice in rows showed a more than twofold increase over last year, and both the area of spread of fine rice varieties and hybrid corn doubled. The masses said that this year's disasters were a rarity and the quality of planting was also a rarity.

After the disasters, the difficulties of hardship households were more pronounced, and the job of helping the poor became more urgent. In addition to issuing relief supplies and loans at once to seriously stricken production teams (or households), Qujing Prefecture arranged for party members and cadres to assume sole responsibility, and together with production teams they went to help hardship households. They were not permitted to eat or drink in hardship households, and most problems of the households enjoying the five guarantees [childless and infirm old persons who are guaranteed food, clothing, medical care, housing and burial expenses by the people's commune], of the four dependents [families of martyrs, servicemen, and others], as well as those of hardship households were fairly quickly solved. This not only gave impetus to the struggle against disaster to produce, but also demonstrated the superiority of the socialist system.

Natural disasters usually strike without warning, and their consequences are hard to eliminate in a short period. Consequently, when taking action to resist disasters, one cannot be concerned only about the present, but one must take care of many things at the same time and make all-round arrangements. Now Qujing Prefecture has laid plans for expanding the planting of the "four fields" (alternately cultivated and fallow land, the two wastelands, orchards, and empty land in mulberry groves), the "single field" (seedling field), and the "two ridges" (ridges between fields and long ditches), as well as an increase in the late autumn crop area. This thinking has been well worked out and can provide food for thought for others.

A look at the province as a whole in light of Qujing shows that when early resistance measures are taken against disasters that have occurred, and early prevention measures are taken against disasters that have not yet occurred, prospects for success in achieving a bumper harvest for the year are hopeful.

9432

CSO: 4007/506

Animal Disease

AUTHOR: CHEN Baixi [7115 4104 1585]

ORG: South China College of Agriculture

TITLE: "Report on the Rapid Control and Eradication of Enzootic Pneumonia in Swine"

SOURCE: Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE JOURNAL OF VETERINARY MEDICINE] in Chinese No 5, May 82 pp 8-11

ABSTRACT: For a long time, swine pneumonia [swine asthma] has been a serious threat to the development of the hog industry and there have been large economic losses. In 1964, the author proposed a simple method of diagnosis without the aid of drugs or x-ray but as it was found to be unsuitable for young piglets, etc. it was never adopted. The author again attempted to use x-ray to diagnose all the swine in the country for thorough treatment of the diagnosed cases with terramycin to control or even eradicate the disease within as short a period as 3-4 weeks. This technique was experimented in 1961, 1964, and 1976. The experimental procedure and result of the 3 experiments, in farms of a swine population of 63, 95, and 811 pigs respectively, are reported in separate chapters in the paper. The technique relies on x-ray alone for diagnosis without resorting to the tedious method of surgically removing unborn fetus or selecting piglets from healthy or naturally cured sows only in an attempt of gradually raising a herd free of this disease. The treatment consists of terramycin only, in various doses and modes of administration.

AUTHOR: CHEN Chuanqiang [7115 0278 1730]

ORG: Guangxi College of Agriculture

TITLE: "A Survey of 'Panting Disease' in Cattle"

SOURCE: Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE JOURNAL OF VETERINARY MEDICINE] No 5, May 82 pp 11-13

ABSTRACT: In recent years incidences of a "panting disease" have been occurring among cattles of some areas of Guangdong, Guangxi, Hunan, etc. provinces (regions,) chiefly among water buffalos, with some cases among yellow oxen and dairy cows. The symptoms are fever, asthma, cough, running nose, and edema. Dissections revealed pulmonary edema or emphysema, chest and abdominal fluid accumulation, and inflammation of the nasal septum. For the purpose of determining the pathogen of this new infectious disease, a survey was carried out, along with a large quantity of laboratory tests. Klebsiella pneumoniae were isolated from some diseased cattles; the findings are yet not sufficiently conclusive for a diagnosis. The survey data also indicate a close relationship between swine asthma (swine enzootic pneumonia) and this panting disease of cattle.

6248

CSO: 4011/205

Botanical Research

AUTHOR: CHEN Ruiyang [7115 3843 7122]
SONG Wenqin [1345 2429 5367]
LI Xiulan [2621 4423 5695]
LIANG Neng [2733 5174]
CHEN Taiqiong [7115 1132 8825]
HUANG Qiaoyun [7806 1564 0061]
CHEN Yong [7115 0516]

ORG: CHEN, SONG, LI of Department of Biology, Nankai University; LIANG, CHEN, HUANG of Guangdong Provincial Academy of Agricultural Sciences; CHEN Yunnan Provincial Academy of Agricultural Sciences

TITLE: "Studies on Three Different Karyotypes of Wild Rice in China"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 3, May 82
pp 226-230

TEXT OF ENGLISH ABSTRACT: In this paper three different karyotypes of wild rice species growing in China were examined, after the preparation of chromosome sample by wall degradation, hypotonic treatment and flame-drying method and stained with Giemsa, i.e. the karyotype of *Oryza perennis*: $K(2n) = 24 = 2A^{sm} + 20B^{sm} + 2C^{sm}$; the karyotype of *O. officinalis*: $K(2n) = 24 = 4A^{m} + 18B^{sm} + 2C^{sm}$; the karyotype of *O. meyeriana*: $K(2n) = 24 = 6A^{m} + 16B^{sm} + 2C^{sm}$.

AUTHOR: TAN Kehui [6223 0344 6540]
ZHANG Yuzhu [1728 3768 4554]

ORG: Both of Plant Physiology Research Office, Research Institute of Botany, Chinese Academy of Sciences

TITLE: "Effect of Trypsin on the Vernalization Process in Winter Wheat"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 3, May 82
pp 241-246

TEXT OF ENGLISH ABSTRACT: This paper deals with the experimental results of the effect of trypsin on the vernalization process in the winter wheat. The variations of both the trypsin-like enzyme activity and the soluble protein content during vernalization in winter wheat seedlings were assayed. The results are as follows: (1) When the vernalization was progressing to the middle stage (around 25 days) the seedlings of the winter wheat were moved into the room temperature for continuous culture. These seedlings possessed the ability to ear after this kind of treatment, but earing development was rather late. Whereas the development of the earing was much earlier by treating them with 100 ppm trypsin just after moving into the room temperature condition. (2) Earing could not be induced by treatment with trypsin (100 ppm) in nonvernalized winter wheat. (3) Vernalization process was promoted in the initial period by trypsin under the low temperature, but it was inhibited in the middle and there was no remarkable effect on the developmental

[continuation of ZHIWU XUEBAO No 3, 1982 pp 241-246]

process in the later period. (4) There was no effect by the treatment of trypsin on the spring wheat under the conditions with or without vernalization. (5) The trypsin-like enzyme activity during the cold condition was increased in the initial period, then decreased remarkably later, but at the same time the soluble protein content increased rapidly. These results indicate that at the middle-later period of the vernalization the synthesis of some specific proteins is very important for the proceeding of vernalization.

AUTHOR: JIANG Delong [5592 1795 7127]

ORG: Shanghai Municipal Research Institute of Meteorological Sciences

TITLE: "The Model of Relations of Rice Tillering to Light and Temperature Conditions"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 3, May 82 pp 247-251

TEXT OF ENGLISH ABSTRACT: A preliminary study was made for the model of the tillering growth and decline of the rice colonies, which was analytically estimated with the agro-climatic data of 1973-1979 in Shanghai suburbs. The estimating result approximates to the observed value. The model we describe is $y_x = a_0 + (a_f - a_0)e^{-\frac{c(d-x)}{x}}$. Here y_x represents the total number of rice stems in unit area when the accumulated temperature is x , which is accumulated by the effective temperature above 10°C since the transplanting of the rice seedlings, a_0 is the basic seedling number in unit area, a_f is the total stem number in tillering peak, and c and d are experiential coefficient which are calculated with experimental data. For the stem number of a single plant, the model is expressed by $Y_x = 1 + (a_f - 1)e^{-\frac{c(d-x)}{x}}$. The actual data were used to illustrate that the

[continuation of ZHIWU XUEBAO No 3, 1982 pp 247-251]

model mentioned above is applicable not only to both Japonica and Indica rice of all varieties, but also to the description of the regional mean tillering state. When a_f^0 is known, it can be calculated with its associated light and temperature conditions.

6248

GSO: 4011/217

Economic Problems

AUTHOR: CHEN Yuke [7115 0151 4430]

ORG: Department of Political Education, East China Teachers University

TITLE: "Increasing the Unit Yield is the Major Way of Further Development of China's Grain Production"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 19-21

ABSTRACT: The farmers usually say adding one chi in width is not as good as one cun in thickness to explain their view of the relationship between enlarging the acreage and increasing the unit yield. These words in fact explain in a nutshell the way to obtain a better economic benefit from agricultural production in China. In the past, some efforts were given to raise the unit yield of grain crops but in general there was not enough emphasis. The major route was always to expand the cultivated acreage and to raise the ratio of grain crops in the existing acreage. The results were excessive land reclamation, the destruction of forests, the abandonment of animal husbandry, and the shrinking surface of lake waters. The efforts were twice as great as the gains while creating erosion, floods, salinization, desertification, and ecological imbalance. In view of consumption needs, in 1980 the per capita grain consumption for China's one billion population was 649 jin, 100 jin less than the world average of 800 jin. [? 150 jin less] If the level of consumption is to be raised to 2,400 Cal per person per day of the world average, raising the unit yield is obviously the only way. Ways of reaching this goal are detailed, using the yield of rice in Japan, corn in the USA, and wheat in Mexico as the examples.

AUTHOR: YU Shuiquan [0060 3055 2164]
WANG Fuzeng [3769 1788 2582]

ORG: Henan Provincial Agricultural Committee

TITLE: "Speed up Agricultural Development in Henan Province by Concentrated Attack on Medium and Low Yield Areas"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 21-23

ABSTRACT: At present, in the province as a whole, the grain yield is less than 600 jin/mu/year and there are 72 low yield counties where the distributed income per person is below 100 yuan [per year?]. These counties are distributed mainly in Huanghe-Huaihe plains and the hilly and mountainous areas. The population of these areas amount to 62.2 percent of the provincial total, having 71 percent of the cultivated acreage and 60.5 percent of the total grain production. Only 43.3 percent of the fields of these areas are irrigated and the 51 jin/mu chemical fertilizer applied is 21 jin less than the provincial average. In a concise yet inclusive manner, this paper proposes possible ways of changing the medium yield to high yield, the low yield to medium yield in these areas very fast with minimal capital investment. Development of cash crops, afforestation, and diversification are included in the ways of improving the production of these areas.

AUTHOR: BAO Yongjiang [0545 3057 3068]

ORG: Research Institute of Economics, Tianjin Academy of Social Sciences

TITLE: "Strengthen Planning and Guidance for Comprehensive Development of Farming, Industry, and Auxiliary Production"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 36-39

ABSTRACT: This paper attempts to answer the much debated question of the status of commune-brigade industry in the rural economy by an analysis of the condition in Tianjin City. The suburbs of Tianjin have a large population and few resources. The cultivated land per capita is only 1.96 mu, while the average of the vegetable farmers is only 0.325 mu/person. The production expenditure is high and the income is little. The net income per mu in 1980 was only 39.1 yuan for cropland and 158 yuan for vegetable-land. The attitude of preferring industry over farming and vegetable production exists, naturally. For 23 years, there has been a policy of controlling the price of vegetables while, at the same time, allowing the production cost to rise continuously. In the 8 years of 1973 to 1980, the cost of producing major fruits and vegetables has more than doubled but the sales price remains the same if not lower. Animal husbandry has not been developed at all. To use cucumber as an example, due to the high cost of plastic films, the economic benefit of raising it in tents was not much better to begin with and the windstorms in Apr and May 81 destroyed the tents, the spring and summer vegetables etc. to cause the vegetable farmers to lose 8 million yuan. It is small wonder that few would try the technique again. Under these conditions, the author believes that the income from commune industries must be included in the income distribution of agricultural production if the two are to develop harmoniously together.

AUTHOR: None

ORG: Survey and Research Division, Yueyang Prefecture Committee Office of Central Communist Party, Hunan Province

TITLE: "A Survey of the Condition of Diversification in the 46 Production Brigades of Yueyang Prefecture"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 40-43

ABSTRACT: The authors visited 46 production brigades of 22 communes of the 4 counties of Huarong, Linxiang, Yueyang, and Xiangyin in the prefecture to find the way of guiding the farmers to prosperity quickly, now that the system of production responsibility has become the general practice in rural villages. In the 3 years the per capita income of 35 brigades has risen to 404 yuan, an increase of 135 percent over that of 1978; while that of 11 brigades has risen to 186 yuan, an increase of 70 percent only. The difference between the 2 groups is successful diversification. For the 11 brigades, diversification still is like "exchanging eggs for salt;" theirs is still largely a self-sufficient economy in the tradition of barter to make it very difficult for them to prosper. The paper devotes its second half to analysis of the experience of the 35 successful brigades and proposals for the 11 not-so-successful brigades.

AUTHOR: LIU Liangyu [0491 5328 3768]

ORG: Political Policy Research Office, Bureau of Agriculture and Reclamation, Ministry of Agriculture, Animal Husbandry, and Fishery

TITLE: "Past and Future of Economic Solidarity Between State-operated Farms and Rural Commune-brigades"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 50-52

ABSTRACT: Since the widespread establishment of State-operated farms in China, conflicts with rural commune-brigades have continued to surface in various forms, largely with respect to wastelands, mountain forests, grasslands, and sources of water. The subject of solidarity arises in the process of searching for ways to resolve these conflicts. In what form the linkage of these two ownership systems should take remains an unresolved problem, however. Following the peak of communization in 1958, some land and people were incorporated into State farms. At that time, about 40 percent of the land and 50 percent of the people of the farms were of commune origin. These independent farmers, who were used to keeping the profit and bearing the loss, found themselves unable to adjust to the life of employees, however. According to statistics, by 1963, half of the newly incorporated had withdrawn taking 8 million mu of land with them. More communes withdrew during the turbulent years after 1966. A new form of loose connection started in the spring of 1979, usually involving joint enterprises in such products as fruits, tea, milk, poultry, etc. In some cases, a State farm is invited by a poor brigade to invest

[continuation of NONGYE JINGJI WENTI No 6, 1982 pp 50-52]

much needed capital to plant rubber trees, to purchase machinery, to provide technology for a certain reward or for proportional division of profit. At present, China has more than 2,000 State-operated farms as well as 2,000 county-level supply and sale associations that are large scale enterprises located near rural villages. They should be considered as a powerful force capable of helping the rural communes and brigades to develop the rural economy. Some ways of utilizing this force are suggested.

AUTHOR: None

ORG: Reporter of the Journal

TITLE: "Beijing Regional Symposium Held by Chinese Agricultural Economics Society"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 6, 23 Jun 82 pp 53-56

ABSTRACT: A Beijing Regional Symposium was held by Chinese Agricultural Economics Society on 30 Mar to continue the discussion of the problem of development strategy of Chinese agriculture. More than 50 persons affiliated with agricultural colleges, research organizations, and operational departments in Beijing attended. This paper provides excerpts of speeches delivered by the following persons at the symposium: (1) LI Renfeng [2621 0088 1496] of the Institute of the USSR and Eastern Europe, Chinese Academy of Social Sciences; (2) ZHANG Tong [1728 2717] of the Former Bureau of Planning, Ministry of Agriculture; (3) YANG Jun [2799 0971] of Chinese Academy of Agricultural Sciences; (4) LI Shihui [2621 1102 1979] of Institute of Agricultural Economics, Chinese Academy of Agricultural Sciences. All are optimistic regarding the possibility of resolving the problem of food grain in China. With regard to strategic measures for bringing about such a resolution, the speeches do not contain any suggestion beyond the normal modernization, organic farming, unified national decision making, diversification, supporting commercial grain production, etc.

6248

CSO: 4011/200

AUTHOR: YANG Haibin [2799 3189 3453]

ORG: Kaifeng Prefecture Agricultural Committee, Henan Province

TITLE: "It is necessary to Raise the Benefits of Existing Water Conservancy Facilities of Agricultural Fields"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 7, 23 Jul 82 pp 11-13

ABSTRACT: Since the liberation, a large number of water conservancy structures have been built in Kaifeng Prefecture and they have had some definite function in the development of agricultural production. Due to the fact that the theory of expanding reproduction of Marxism was not understood, these new structures were viewed as expanded reproduction so that they were not well maintained, repaired and utilized. Under the influence of leftism, those who wanted to expand the reproduction action of existing structures were considered as conservative, negative, and do-nothing types because the leftists believed that adding new engineering structures there is an expanding of reproduction. According to the year-end statistics of 1980, the design capabilities of the existing water conservancy facilities of the prefecture are to benefit 6 million mu but only 2.70 million mu benefitted. The prefecture has 50 thousand wells and 2,000 mechanical and electrical irrigation stations. Not much capital investment is needed to add or lengthen some channels, level a piece or two of the fields, etc., to enlarge the irrigation benefit to some additional 2-3 million mu of fields. Strengthening management and implementing the system of responsibility are all that are needed to accomplish this goal. Detailed measures to carry out this idea are proposed.

AUTHOR: HE Shukai [5170 2885 0418]

ORG: Information Center, Fujian Provincial Academy of Agricultural Sciences

TITLE: "Inquiry Into the Problem of Rural Energy Sources in Fujian Province"

SOURCE: Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 7, 23 Jul 82 pp 44-46

ABSTRACT: Since ancient times, firewood and stubbles have always been the fuel of rural villages in Fujian. It was the traditional fuel for cooking, rural auxiliary industries, etc. A few places in the province, there were some small coal pits mined with native methods but inconvenience of transportation cause coal to be unimportant as a rural energy source, the same may be said for hydroelectrical, wind, electrical, and petroleum power. After the liberation, the development of production has greatly increased the consumption of energy, but the source of fuel remains essentially the same. The paper analyzes the supply potential of solar, hydroelectric, biological, forest tree, marsh gas, wind, geothermal, and sea water energy in the province. Ways of conserving energy are also briefly suggested.

6248

CSO: 4011/216

Forestry

AUTHOR: WEI Lin [5898 2651]
JIANG Ailiang [3068 1947 5328]
SONG Zhaomin [1345 0340 3046]

ORG: WEI of Research Institute of Geography, Chinese Academy of Sciences; JIANG,
SONG of Research Institute of Forestry, Chinese Academy of Forestry Sciences

TITLE: "The Influence of Shelterbelts on the Temperature of Wheat Leaves"

SOURCE: Beijing LINYE KEXUE [SCIENTIA SILVAE SINICAE] in Chinese No 2, May 82
pp 135-142

TEXT OF ENGLISH ABSTRACT: The temperature of wheat leaves on growing plants in experiment blocks in and out of a shelterbelt system was measured by the infra-red thermometer. Data showed the following results: (1) Shelterbelt appeared to have a cooling effect on the leaves of the plants in the system in a dry season or in drought areas. (2) A change of the air current strength was made to induce a corresponding variation of eco-environmental factors which caused a difference in the leaf temperature of wheat plants in and out of a shelterbelt. (3) After the strength of the hot, dry air current reached a certain level, the different value between the front and the back of a shelterbelt had a tendency to decrease. (4) The mean temperature on leaves of the wheat plants behind the shelterbelt was 1.3°C which was lower than that of those in the open field, during the period of jointing stage to maturity. Their accumulated temperature was 49.5°C class, which was about the equivalent of 2 days of temperature accumulation. The date of maturity of those wheat plants behind the shelterbelt was delayed about 2-3 days.

AUTHOR: LI Guangda [2621 0342 1129]

ORG: Northeast College of Forestry

TITLE: "A Study on the Rationality of Application of Modern Mobile Logging Machinery in China"

SOURCE: Beijing LINYE KEXUE [SCIENTIA SILVAE SINICAE] in Chinese No 2, May 82
pp 185-191

TEXT OF ENGLISH ABSTRACT: In the last decades, countries that are advanced in forest industries have developed various mobile logging machines (feller-buncher, harvester, processor) for the purpose of realizing full mechanization. This paper gives a brief account of such sophisticated mobile logging machinery. China has imported some such heavy logging machinery from overseas, which are being tested at present. First results indicate that this heavy machinery is not suitable for the present stage of development in China. From the socioeconomic point of view, for the moment, it is not desirable to introduce such expensive and sophisticated machines, due to the abundant availability of manpower resources at extremely low cost. We should give priority to appropriate technology which requires less investment and brings more benefits.

6248

GSO: 4011/218

Grain Experimentation

AUTHOR: XU Zhigang [6079 1807 4854]
ZHU Jialin [2612 1367 3829]
LU Qiyu [4151 0366 3254]
FANG Zhongda [24550022 6671]
WANG Meizhen [3769 5019 3791]

ORG: XU, ZHU, LU, FANG of Nanjing College of Agriculture; WANG of Jiangsu College of Agriculture

TITLE: "Comparison of Some Properties of Two Groups of Phage of *Xanthomonas Oryzae* Dowson"

SOURCE: Tianjin ZHIWU BINGLI XUEBAO [ACTA PHYTOPATHOLOGICA SINICA] in Chinese No 2, Jun 82 pp 1-6

TEXT OF ENGLISH ABSTRACT: More than 20 isolates of the bacteriophage of *Xanthomonas oryzae* from leaves and seeds of diseased rice plants and irrigation water of diseased paddy fields were separated into 2 groups on basis of their morphology and other properties. Phages of group XOP 1 (represented by isolate OP-3) produce large plaque about 3 mm in diameter. It is tadpole shaped with a polyhedral head of 65 nm in diameter, and a striated non-contractile tail of 140 x 18 nm in size. The latent period and raising period are respectively 40 and 30 minutes, and their average burst size is about 35 plaque forming units (PFU) per cell. Phages of group XOP 1 are completely inactivated by heat treatment at 58°C for 10 minutes and

[continuation of ZHIWU BINGLI XUEBAO No 2, 1982 pp 1-6]

the unabsorbed free phages of this group are inactivated by ferric salts solution (10^{-4} M.) Phages of group XOP 2, represented by isolate OP-12, produce small plaque about 1 mm in diameter. It is also tadpole shaped, with polyhedral head of 70 nm in diameter, and a short contractile tail 90 x 20 nm in size. The latent period and raising period are 80 and 50 minutes respectively and their average burst size is about 8 plaque forming units per cell. Phages of group XOP 2 are completely inactivated by heat treatment at 68°C for 10 minutes. Serologically they are also different, experimented phages of group XOP 1 and XOP 2 are specific to *Xanthomonas oryzae*, but phages of group 2 is much broader in spectrum of its hosts than group XOP 1, judging from their reaction to different isolates of *Xanthomonas oryzae*.

AUTHOR: TAO Jiafeng [7118 1367 7364]
SHEN Yanzhang [3088 6056 4545]
QIN Jiazhong [4440 1367 1813]
QIN Yun [4440 5466]

ORG: All of Sichuan College of Agriculture

TITLE: "Varietal Resistance of Wheat to Powdery Mildew"

SOURCE: Tianjin ZHIWU BINGLI XUEBAO [ACTA PHYTOPATHOLOGICA SINICA] in Chinese No 2, Jun 82 pp 7-14

TEXT OF ENGLISH ABSTRACT: Seedlings of wheat species and varieties resistant or susceptible to powdery mildew were inoculated with conidia of *Erysiphe graminis tritici*. About 60 percent of the conidia germinated and formed appressoria within 8 hours after inoculation. The percentage and rate of conidia germination on the leaf surface of resistant and susceptible wheat varieties showed no difference at the early stage of infection. The difference became apparent at the stages of penetration and further development. Earliest penetration was observed on the highly susceptible group 12 hours after inoculation, 83 percent of germinated conidia to penetrate within 36 hours. Less germinated *E. graminis tritici* conidia penetrated into leaves of resistant varieties of wheat than into those of susceptible ones. During 36 hours, the percentage of penetration of the susceptible, resistant, and highly resistant varieties were 65, 45, 27 percent respectively. The haustorial formation in the case of resistant varieties delayed and the haustoria developed in the epidermal cell of resistant varieties were smaller. On resistant plants developed fewer, less dense colonies with less sporulation than on the susceptible plants.

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TITLE: "The Host Range of the Wheat Rosette Disease (NCMV)"

SOURCE: Tianjin ZHIWU BINGLI XUEBAO [ACTA PHYTOPATHOLOGICA SINICA] in Chinese No 2, Jun 82 pp 21-24

TEXT OF ENGLISH ABSTRACT: Seventy gramineous species including both the cultivated and wild were tested by viruliferous planthopper (*Laodelphax striatella* Fallen) inoculations. The inoculated plants were detected with a serological method of carbon agglutination. The results indicated that 16 genera, 53 plant species of them were the host plants of NCMV. They are: *Hordeum distichum*, *H. distichum* var. *nudum*, *H. vulgare*, *H. vulgare* var. *nudum*, *H. lagunculiforme*, *H. agriocrithon* var. *eilavio-crithon*, *H. agriocrithon* var. *nudus*, *H. agriocrithon* var. *dawoense*, *H. spontaneum*, *Triticum monococcum*, *T. aegiloides*, *T. turgidum ramoso-lusitanicum*, *T. dicoccoides*, *T. durum*, *T. polonicum*, *T. persicum*, *T. timopheevii*, *T. aestivum*, *T. compactum*, *T. sphaerococcum*, *T. spelta*, *T. macha*, *T. orientale*, *T. pyramidale*, *Aegilops ventricosa*, *Ae. squarrosa*, *Ae. crassa*, *Ae. juvenalis*, *Ae. kotschyi*, *Ae. variabilis*,

[continuation of ZHIWU BINGLI XUEBAO No 2, 1982 pp 21-24]

Ae. cylindrica, *Ae. ovata*, *Ae. longissima*, *Ae. sp.*, *Haynaldia villosa*, *Triticale*, *Secale cereale*, *Lolium multizlorum*, *Bromus japonicus*, *Poa annua*, *Beckmannia erucaeformis*, *Avena sativa*, *Phleum paniculatum*, *Eragrostis pilosa*, *E. pilosa* var. *imberbis*, *E. ferruginea*, *Polypogon fugax*, *Setaria italica*, *S. viridis*, *S. lutescens*, *S. faberii*, and *Zea mays saccharata*.

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TITLE: "Two New Forms of *Fusarium avenaceum* (Fr.) Sacc.: The Pathogens of Broadbean Stem-end Rot"

SOURCE: Tianjin ZHIWU BINGLI XUEBAO [ACTA PHYTOPATHOLOGICA SINICA] in Chinese
No 2, Jun 82 pp 25-32

TEXT OF ENGLISH ABSTRACT: In our collection of *Fusarium* specimens, we obtained 2 isolates designated No Y088 and No Y089 of *Fusarium avenaceum* (Fr.) Sacc. from stem-end rot samples of broadbean plants from suburb of Kunming in Feb 1975. Cultural studies on PSA and PDA showed that No Y088 produced well developed mycelia and 2 types of macroconidia. One is the general *avenaceum* type, the other is the *Graminearum* type. No 089 produced merely pionnotes over the media and was characterized as a typical pionnotes type, although it may occasionally develop poor aerial mycelia on surface of the colony. Host range studies confirmed that both Y088 and Y089 infected broadbean and green pea and slightly infected *Vicia cracca* L in artificial inoculation, but they are much weaker in virulence than No Y086. The

[continuation of ZHIWU BINGLI XUEBAO No 2, 1982 pp 25-32]

growth rate of single spore colonies and the amount of sporulation of these isolates were compared. Based on the studies, the two isolates can be recognized as two distinct forms of *Fusarium avenaceum* (Fr.) Sacc.: namely *Fusarium avenaceum* (Fr.) Sacc.f. *fabarum* Ruan et al. f. nov. for Y088 and *Fusarium avenaceum* (Fr.) Sacc. f. *fabalis* Ruan et al. f. nov. for Y089.

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TITLE: "On the Incidence of Maize Head Smut (*Sphacelotheca reiliana* (Kuhn) Clint.)"

SOURCE: Tianjin ZHIWU BINGLI XUEBAO [ACTA PHYTOPATHOLOGICA SINICA] in Chinese No 2, Jun 82 pp 33-40

TEXT OF ENGLISH ABSTRACT: The maize head smut disease (*Sphacelotheca reiliana* (Kuhn) Clint.) infected maize budlets and young roots of seedlings, but the percentage of infected budlets was higher than that of young roots. No significant difference of infection was shown in budlet sheath and hypocotyl. Infections occurred since the germination of seeds up to the 7-leaf stage and no infections took place after the 9-leaf stage. More seedlings were infected in the 3-leaf stage. Infection of the fungus was effected within the range of soil temperatures 3-35°C; the optimum was at 16-25°C (22°C.) No significant difference was observed in the percentage of infection of different sowing dates in spring. Maize plants sown in summer were rarely infected. Percentage of infection was high when the moisture capacity of soil was at 15.5 percent while decreased when the humidity was too high or too low. Seedlings emerged from a thicker layer of infected soil resulted in a higher percentage of infection. The fungus was observed to be able to live for 2 seasons under field conditions.

6248

CSO: 4011/219

Mountain Terrain

AUTHOR: LI Xincheng [2621 2450 2052]

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TITLE: "Tap Local Potentials and Speed up Construction in Mountainous Areas"

SOURCE: Taiyuan SHANXI NONGYE KEXUE [SHANXI AGRICULTURAL SCIENCE] in Chinese No 7, 1982, pp 2-5

ABSTRACT: In his position of county party secretary, the author made a resource inventory of his county covering 1760 square kilometers, between 628 and 1792 meters of elevation at one end of the Taihang Mountain range. Here winters are long and summers are not markedly different in onset, when most precipitation drops off, supporting one crop harvest per year. In this climate, potatoes grow better than wheat. To suit the terrain, fruit (apple, walnut and hawthorn) and mulberry trees are projected to be increased in area in addition to afforestation. The hydroelectric potential can power the opening up of local deposits of coal, marble and sulfur as well as the operation of small cement enterprises. Though reported with an optimistic tone, the author-cadre implicitly concedes difficulties ahead by his shifting the emphasis to trees and mines from the present cultivation of some 70,000 acres of marginal farm land for the nearly one-quarter million inhabitants.

10424

CSO: 4011/222

END

B1 - CONTROL NUMBER: U320122
 B4 - ACCESSION NUMBER:JPRS-81803
 B3 - COLLECTION CODE: 3
 B6 - MANAGEMENT CODE: XR
 B7 - PROCESS ACTNG CD: 01 B7A-REGISTRATION FEE: 00000
 B8 - PRODUCT MANAGER: H
 B9 - RECEIPT TYPE: 1 B9A-LOAN DUE OUT:
 B10- TRANSACTION: TN B10A-DUPE/PRIOR/SUPER:
 B12- RETURNS: 0 B12A-RETURN DATE:
 B13- PROCESSING: 1
 B14- PAT. POTENTIAL: 0
 B17- FORM/PRICE: 12002 ,
 B18- ANNOUNCE: 0000
 B19- PUBLICATION-1: U8305 B20- PUBLICATION-2:
 B21- LIMITATION: 0
 B23- PC BIN: 000
 B24- STOCK: 0007 B24A-STOCK TYPE CODES: D
 B25- PAGES/SHEETS: 00067
 B26- PC PRICE CODE: A04
 B27- DOMESTIC PRICE: 0000000 B28- FOREIGN PRICE: 0000000
 B29- ACTION CODES: SS
 B33- MN PRICE CODE: X00
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 B36- ACTION CODES: XM
 B37- RELEASABILITY CD: A
 B38- MF PRINT: D
 B39- ADDITIONAL INFO: n
 B40- PRINT PC: n
 B41- PC DUE: n
 B42- SOURCE ORDER: n
 B42A-GENERATE RDP: 0
 B42B-SUPPLIER SRC CD: n
 @06)China Report, Agriculture, No. 2@@@
 27.[@@@
 @11)20 Sept 82,[@@@