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CONTENTS

PAGE

I. STATISTICS 1

II. GENERAL INFORMATION 15

National

Need To Improve Wheat Breeding in North China Stressed (Tsai Hsu; CHUNG-KUO NUNG-YEH K'O-HSUEH, No 1, Feb 78) 15

Research on How To Stop Cotton Boll Shedding Carried Out (KWANGMING DAILY, 27 Aug 78) 29

Plastic Membranes Used in Preventing Leakage in Irrigation Ditches (KWANGMING DAILY, 5 Aug 78) 31

Anhwei

Briefs

Anti-Drought Work 32
Anhwei Prefectures Fighting Drought 32
Anhwei County Agriculture 32
Agricultural Production 33
Huaipei Wheat Production 33
Anhwei County Wheat 33
Autumn Sowing 33
Anhwei Prefecture Drought 33
Fuyang Prefecture Agriculture 34
Wuhu Prefecture Transplanting 34
Autumn Sowing in an Anhwei County 34
Anhwei Prefecture Expands Summer-Harvested Crop Areas 34
Anhwei Prefecture Agriculture 34
Anhwei County Drought 34
Anhwei County Drought Fight 35
Anhwei Prefecture Drought 35
Anhwei Prefectures Wheat 35

CONTENTS (Continued)

Page

Chekiang

Chekiang Province Undertaking Water, Soil Projects (NCNA, 23 Oct 78)..... 36

Briefs

Chekiang Tea Procurement 38

Fukien

Briefs

Fukien Mid-Late Rice Harvest 39
Lungyen Prefecture Agriculture 39
Role of a Fukien County Reservoir 39

Heilungkiang

Heilungkiang Holds Meeting on Autumn Harvesting (Heilungkiang Provincial Service, 10 Oct 78)..... 40

Briefs

Anti-Drought Measures 42
Reclamation Task Prefulfilled 42
Heilungkiang Grain Farm 42
Heilungkiang Potato Harvest 42

Honan

Briefs

Wheat Sowing Completion 43

Hunan

Briefs

Early-Rice Production in Hunan Prefecture, County 44
Hunan County's Commune, Brigade Enterprises 44
Hunan County Oil-Bearing Crops 44
Hunan County Timber 45
Hunan County Enterprises 45
Hunan Ramie Harvest 45
Hydrographic Team 45
Hunan County's Forestry 45
Teaseed Oil Production 45
Changte Prefecture Agriculture 45

CONTENTS (Continued) Page

Hupeh

Hupeh Holds Farmland Capital Construction Conference (Hupeh Provincial Service, 23 Oct 78)..... 46

Briefs

Hupeh Prefecture Summer Grain 47
Hupeh Prefectures' Sowing 47
Enshih Minor Autumn Harvest 47
Summer Grain Growing 47
Sui County Grain Production 47
Hupeh County Seasame 48
Hupeh County Minor Autumn Harvest 48
Hupeh County Rape 48
Hupeh County Rape Production 48
Tungshan County Autumn Harvest 48

Inner Mongolia

Briefs

Liangcheng County Harvest 49

Kiangsi

Briefs

Ichun Prefecture Oil 50
Fuchou Prefecture Rape Production 50
Kiangsi Drought 50
Kiangsi Prefecture's Afforestation 50
Kiangsi Tea Production 51
Ichung Prefecture Agriculture 51
Kiangsi Rice Production 51
Minor Autumn Harvest 51

Kirin

Briefs

Kirin Fungus, Antlers 52
Kirin Afforestation 52
Kirin Farmland Capital Construction 52
Machines, Rice Improvements 52

CONTENTS (Continued) Page

Kwangsi

Briefs

Kwangsi Agricultural, Sideline Procurement 53
Farmland Capital Construction 53
Wuchou Prefecture Afforestation 53
Kueiping County Green Manure 54
Tahsin County Rice 54
Pingnan County Oil Procurement 54
Kwangsi County Pigs 54
Tuan Yao County Pig-Raising 54
Kwangsi Prefecture Winter Sowing 54
Kwangsi County Manure 55
Pai-Se Prefecture Teaseed 55
Chungtso County Manure 55

Kwangtung

Kwangtung Fighting Shortages in Agricultural Equipment
(Kwangtung Provincial Service, 14 Oct 78)..... 56

Good Paddy Rice Strains Trial Planted
(TA KUNG PAO, 7 Aug 78)..... 58

Briefs

Kwangtung Prefecture 'Cold Dew' 60
Hainan County Floods 60
Hainan County Fights Floods 60
Hainan Farms Reclaim Land for Rubber Trees 61
Hainan Sweet Potato Sowing 61
Water Conservancy Conference 61
Yunfu County Winter Sowing 62
Hainan Farmland Capital Construction 62
Hainan Reservoir Use 62
Shaokuan Prefecture Afforestation 63

Kweichow

Briefs

Kweichow Prefecture Agricultural Rewards 64
Kweichow Prefecture Agriculture 64
Kweichow Autonomous County's Pig Procurement 64
Kweichow County's Water Conservancy Capital Construction 65
Kweichow County 'Minor Autumn Harvest' 65
Tsuni County Hybrid Rice 65
Kweichow County's Scientific Farming 65
Anshun County Autumn Transplanting 66
Anshun Prefecture Agriculture 66
Kweichow Prefecture Agriculture 66

CONTENTS (Continued) Page

Liaoning

Briefs

Grain Profits 67
Drought-Fighting Campaign 67
Chao-Wu-Ta League Livestock Production 67
Liaoning Diversified Economy 67

Shansi

New Diffusion Method of Irrigation Used (KWANGMING DAILY, 5 Aug 78)..... 68

Shansi Commune Drives 15-Kilometer-Long Irrigation Tunnel (NCNA, 20 Oct 78)..... 70

Shantung

Briefs

Shantung Wheat Fields 71
Shantung Farmland Improvement Campaign 71
Shantung Cadres Labor 71

Szechwan

Briefs

Szechwan Drought Continues 72

Tibet

Tibet Formulates Economic Policy for Pastoral Communes (NCNA Domestic Service, 7 Oct 78)..... 73

Briefs

Livestock Region Established 75

Yunnan

Briefs

Yunnan Prefecture Distribution 76
Yunnan Prefecture's 'Minor Autumn Harvest' 76
Yunnan County Rice 76
Mitu County Agriculture 77
Hsiangyun County Harvest 77
Yunnan County Agricultural Production 77
Agricultural Quotas Fulfilled 77
Yunnan County Enterprises 77

I. STATISTICS

CHEKIANG

Item	Year	Data
Chekiang Province		
Early rice acreage	1978	18 million mou.[1]
Average per-mou output of early rice	1978	Increased 84 catties as compared with that in 1977.[1]
Total output of early rice	1978	Increased by 15 percent as compared with that in 1977.[1]
Chin-hua Prefecture		
Lan-hsi County		
Output of Chinese dates	1978	600,000 catties; an increase of three times over that in 1977.[2]
Li-shui Prefecture		
Lung-ch'uan County		
Acreage of trees planted	4 Sep 78	40,000 mou.[3]
Acreage of hilly land reclaimed	4 Sep 78	10,000 mou.[3]
Acreage of land levelled	4 Sep 78	2,500 mou.[3]

CHEKIANG (Cont'd)

Item	Year	Data
T'ai-chou Prefecture		
Wen-ling County		
Per-mou yield of early rice	8 Sep 78	820 catties.[4]
Total output of early rice	8 Sep 78	330 million catties; 20 percent increase over that in 1977.[4]

Sources: 1. Hong Kong CHUNG-KUO HSIN-WEN 24 Aug 78 p 3
2. Hangchow Chekiang Provincial Service in Mandarin 1100 GMT 20 Sep 78 OW
3. Hangchow Chekiang Provincial Service in Mandarin 1100 GMT 17 Sep 78 OW
4. Hangchow Chekiang Provincial Service in Mandarin 0300 GMT 8 Sep 78 OW

FUKIEN

Item	Year	Data
Lung-hsi Prefecture		
Lung-hai County		
Total grain output	1977	Increased by more than 42 million catties over that in 1976.[1]
Average per-mou grain yield	1977	1,400 catties.[1]

Source: 1. Peking NCNA Domestic Service in Chinese 1153 GMT 4 Sep 78 OW

HEILUNGKIANG

Item	Year	Data
Hei-ho Prefecture		
Acreage of wheat harvest	21 Sep 78	1.8 million mou.[1]
Total wheat output	21 Sep 78	Increased by 14 percent over 1977.[1]
Per-mou yield of wheat	21 Sep 78	Increased by more than 10 percent over 1977.[1]

HEILUNGKIANG (Cont'd)

Item	Year	Data
Hei-ho Prefecture		
Pei-an & Te-tu Counties		
Acreage of wheat fields	21 Sep 78	500,000 mou.[1]
Average per-mou yield of wheat	21 Sep 78	300 catties.[1]

Source: 1. Harbin Heilungkiang Provincial Service in Mandarin 2200 GMT 21 Sep 78 OW

HOPEI

Item	Year	Data
Hopei Province		
Winter wheat acreage planned	23 Sep 78	42 million mou.[1]
Shih-chia-chuang Prefecture		
Chao County		
Pear acreage	21 Aug 78	35,710 mou.[2]
Total yield of pears	21 Aug 78	90 million catties, or 17.94 million catties more than that in 1977, a record year.[2]

Sources: 1. Peking NCNA Domestic Service in Chinese 0355 GMT 23 Sep 78 OW
2. Shihchiachuang Hopei Provincial Service in Mandarin 1100 GMT 21 Aug 78 OW

HUNAN

Item	Year	Data
Hunan Province		
Acreage of early rice	1978	30,940,000 mou.[1]
Total output of early rice	1978	Increased 10 percent over that in 1977.[1]

Item	Year	Data
Ch'ang-te Prefecture		
Li County		
Acreage of early rice harvested	26 Sep 78	800,000 mou.[2]
Average per-mou yield of early rice	26 Sep 78	650 catties.[2]
Early rice output	26 Sep 78	Increased by 77.75 million catties compared with 1977.[2]
Ch'ang-te Prefecture		
Tz'u-li County		
Planned acreage of rape	4 Sep 78	100,000 mou; 30,000 mou more than in 1977.[3]
Ch'en-chou Prefecture		
Yung-hsing County		
Acreage of teaseed oil forests	4 Sep 78	420,000 mou; 210,000 mou of teaseed oil plants have been gathered.[3]
Heng-yang Prefecture		
Ch'i-tung County		
Length of standard irrigation channels completed	26 Sep 78	460 kilometers.[2]
Hsiang-t'an Prefecture		
Hsiang-t'an County		
Planned rape acreage	1978	300,000 mou.[4]
I-yang Prefecture		
An-hua County		
Total value of minor autumn harvest	1978	3.96 million yuan; more than 10 percent over the same period in 1977.[5]

HUNAN (Cont'd)

Item	Year	Data
I-yang Prefecture		
Ning-hsiang County		
Acreage of early rice harvested	26 Sep 78	900,000 mou.[6]
Early rice output	26 Sep 78	Increased by 119 million catties as compared with 1977.[6]
Mi-lo River Basin		
Early rice acreage	28 Aug 78	928,000 mou.[7]
Average per-mou yield of early rice	28 Aug 78	Increased 20 percent as compared with that in 1977.[7]
Total output of early rice	28 Aug 78	Increased by 84.7 million catties as compared with previous record year.[7]

Sources:
1. Hong Kong CHUNG-KUO HSIN-WEN 24 Aug 78 p 3
2. Changsha Hunan Provincial Service in Mandarin 2230 GMT 26 Sep 78 HK
3. Changsha Hunan Provincial Service in Mandarin 1100 GMT 4 Sep 78 HK
4. Changsha Hunan Provincial Service in Mandarin 1100 GMT 22 Sep 78 HK
5. Peking NCNA Domestic Service in Chinese 0148 GMT 22 Sep 78 OW
6. Changsha Hunan Provincial Service in Mandarin 2330 GMT 26 Sep 78 HK
7. Hong Kong CHUNG-KUO HSIN-WEN 26 Aug 78 p 3

HUPEH

Item	Year	Data
Hsiang-yang Prefecture		
Summer grain output	19 Sep 78	Increased by 37.8 percent as compared with that in 1977; bumper harvest reaped.[1]
Amount of manure collected	19 Sep 78	300 million piculs;[1] fulfilling 75 percent of plan.[1]

HUPEH (Cont'd)

Item	Year	Data
Hsiang-yang Prefecture		
Ku-ch'eng County		
Summer grain production	19 Sep 78	Increased by 39 million catties as compared with that in 1977.[1]
Hsiao-kan Prefecture		
Ta-wu County		
Acreage of early rice harvested	5 Sep 78	420,000 mou.[2]
Early rice output	5 Sep 78	Increased by 25 percent as compared with that in 1977.[2]
Hsiao-kan Prefecture		
Ying-ch'eng County		
Acreage of early rice harvested	5 Sep 78	400,000 mou.[2]
Early rice output	5 Sep 78	Increased by 20 percent as compared with that in 1977.[2]
I-ch'ang Prefecture		
Value of minor autumn crops harvested	Early Sep 78	568,000 yuan; 14 percent more than in the corresponding period in 1977.[3]

Sources: 1. Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 19 Sep 78 HK
2. Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 5 Sep 78 HK
3. Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 24 Sep 78 HK

INNER MONGOLIA

Item	Year	Data
I'k'o-chao League		
Number of head of livestock	By end-Jun 78	5.55 million.[1]

INNER MONGOLIA (Cont'd)

Item	Year	Data
Number of sheep of improved varieties	28 Aug 78	1.2 million; accounts for 55 percent of the total number of sheep.[1]
Death rate of livestock	Winter 77	Less than 2 percent.[1]

Source: 1. Hong Kong CHUNG-KUO HSIN-WEN 29 Aug 78 p 4

KIANGSI

Item	Year	Data
Kiangsi Province		
Early rice acreage	1978	25 million mou.[1]
Total output of early rice	1978	Increased 10 percent over that in 1977.[1]

Source: 1. Hong Kong CHUNG-KUO HSIN-WEN 24 Aug 78 p 3

KIANGSU

Item	Year	Data
Hsu-chou Prefecture		
Hsin-i County		
Amount of eggs procured	12 Aug 78	2.2 million catties.[1]
Nan-t'ung Prefecture		
Nan-t'ung County		
Amount of cotton harvested	By 10 Sep 78	1.4 million piculs.[2]
Su-chou Prefecture		
Ch'ang-shu County		
Average per-mou yield of early rice	1 Sep 78	652 catties, a new county record.[3]
Early rice acreage reaped	1 Sep 78	400,000 mou.[3]

KIANGSU (Cont'd)

Item	Year	Data
Su-chou Prefecture		
Sha-chou County		
Late rice acreage	10 Sep 78	230,000 mou.[4]
Single crop late maturing rice	10 Sep 78	100,000 mou.[4]
Yang-chou Prefecture		
Hsing-hua County		
Acreage of wheat, barley and naked barley harvested	22 Sep 78	910,000 mou.[2]
Per-mou yield of wheat, barley and naked barley	22 Sep 78	Exceeded 500 catties.[2]
Total output of wheat, barley and naked barley	22 Sep 78	Increased by 10 percent above the best production in the past.[2]
Yang-chou Prefecture		
Kao-yu County		
Number of ducks raised	23 Aug 78	1.2 million; surpassing that in 1977 by 10 percent.[5]

Sources: 1. Nanking Kiangsu Provincial Service in Mandarin 1030 GMT 12 Aug 78 OW
2. Nanking Kiangsu Provincial Service in Mandarin 1030 GMT 22 Sep 78 OW
3. Nanking Kiangsu Provincial Service in Mandarin 1030 GMT 1 Sep 78 OW
4. Nanking Kiangsu Provincial Service in Mandarin 1030 GMT 10 Sep 78 OW
5. Hong Kong CHUNG-KUO HSIN-WEN 24 Aug 78 p 5

KWANGSI

Item	Year	Data
Ho-ch'ih Prefecture		
Tu-an-yao Autonomous County		
Acreage of hemp interplanted in maize fields	22 Sep 78	83,500 mou, up 170 percent compared with 1977.[1]
Liu-chou Prefecture		
Wu-hsuan County		
Acreage of autumn-planted sugarcane	By 13 Sep 78	2,780 mou.[2]
Liu-chou Prefecture		
Wu-hsuan County		
Early rice output	25 Sep 78	Increased by 17.45 million catties, or 22 percent, as compared with same period in 1977.[3]
Nan-ning Prefecture		
Fu-sui County		
Amount of hemp procured	By 10 Sep 78	34,000 piculs; up 50.3 percent compared with same period in 1977.[2]
Acreage of hemp cultivated	1978	35,000 mou, increased by 56 percent compared with 1977.[2]
Nan-ning Prefecture		
Lung-chou County		
Output of star aniseed	1978	1.2 million catties, up 76.6 percent compared with 1977.[2]
Wu-chou Prefecture		
Fu-ch'uan County		
Acreage of date trees transplanted	Past 3 years	600,000 mou.[4]

KWANGSI (Cont'd)

Item	Year	Data
Yu-lin Prefecture		
Kuei County		
Acreage of autumn-planted sugarcane	By 18 Sep 78	13,000 mou; fulfilling 68.6 percent of the cultivation plan.[5]

Sources:
1. Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 22 Sep 78 HK
2. Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 21 Sep 78 HK
3. Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 25 Sep 78 HK
4. Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 31 Aug 78 HK
5. Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 26 Sep 78 HK

KWANGTUNG

Item	Year	Data
Chao-ch'ing Prefecture		
Ssu-hui County		
Total rice acreage	2 Oct 78	300,000 mou; of which 170,000 mou has been irrigated and 74,000 mou refertilized.[1]
Fo-shan Prefecture		
Acreage of rice tended	5 Sep 78	5 million mou.[2]
Hainan Island		
Area of tea plantations	29 Aug 78	Over 40,000 mou.[3]
Annual output of tea leaves	1978	More than 30,000 piculs.[3]

KWANGTUNG (Cont'd)

Item	Year	Data
Hainan Island		
Acreage of summer and autumn potatoes	19 Sep 78	854,000 mou.[4]
Hai-k'ou Municipal suburbs		
Sweet potato acreage sown	19 Sep 78	20,600 mou; accounts for 88 percent of quota.[4]
Ting-an County		
Sweet potato acreage sown	19 Sep 78	52,000 mou.[4]
Ch'iung-hai County		
Sweet potato acreage sown	19 Sep 78	80,000 mou; accounts for 80 percent of quota.[4]
Acreage afforested	By 15 Sep 78	37,200 mou; 30,000 mou more than corresponding period of 1977.[4]

Sources:
1. Canton Kwangtung Provincial Service in Mandarin 0430 GMT 2 Oct 78 HK
2. Canton Kwangtung Provincial Service in Mandarin 0430 GMT 5 Sep 78 HK
3. Hong Kong CHUNG-KUNG HSIN-WEN 30 Aug 78 p 4
4. Haikow Hainan Island Regional Service in Mandarin 0430 GMT 19 Sep 78 HK

KWEICHOW

Item	Year	Data
Ch'ien-nan Autonomous Prefecture		
Acreage of hybrid rice transplanted	21 Sep 78	300,000 mou; an increase of 340 percent as compared with 1977.[1]
Acreage of hybrid rice transplanted	1977	93,000 mou.[1]

Source:
1. Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 21 Sep 78 HK

NINGSIA

Item	Year	Data
Ningsia Province		
Acreage of enclosed grass areas	Since 1977	1.18 million mou.[1]
Yen-ch'ih County		
Net increase in number of sheep	1977	37 percent.[1]
Lamb survival rate	1978	94 percent.[1]
Al-la-shan-tso Banner		
Lamb survival rate	1978	97 percent.[1]

Source: 1. Hong Kong CHUNG-KUO HSIN-WEN 31 Aug 78 p 5

SHENSI

Item	Year	Data
Han-chung Prefecture		
Acreage of trial-cultivated hybrid late rice	1 Sep 78	38,000 mou.[1]
Hsien-yang Prefecture		
Ching-yang County		
Cotton acreage planted	1978	More than 249,000 mou; growing well.[2]

Sources: 1. Sian Shensi Provincial Service in Mandarin 2330 GMT 1 Sep 78 HK
2. Sian Shensi Provincial Service in Mandarin 1300 [no date given]

YUNNAN

Item	Year	Data
Yunnan Province		
Output of minor spring grain crops	1978	Increased by 13 percent as compared with that in 1977.[1]

Item	Year	Data
Wheat output	1978	Increased by 23 percent as compared with that in 1977.[1]
Area of minor spring grain crops	1978	Increased by 7.8 percent as compared with that in 1977.[1]
Wheat area	1978	Increased by 15 percent as compared with that in 1977.[1]
Ch'u-hsiung-i Autonomous Prefecture		
Mou-ting County		
Acreage sown to wheat	1977	60,000 mou.[2]
Acreage sown to broad beans	1977	50,000 mou.[2]
Acreage sown to food grains and rape	1977	25,000 mou.[2]
Amount of farm manures collected	By 30 Aug 78	323 million catties.[2]
Acreage of autumn green manure sown	By 30 Aug 78	3,500 mou.[2]
Hung-ho Ha'ni Yi Autonomous Prefecture		
Acreage of grain crops reaped	By 10 Sep 78	1.05 million mou; accounts for 34.5 percent of the total area of farmland.[3]
Ssu-mao Prefecture		
Acreage of rice harvested	By 20 Sep 78	526,000 mou.[4]
Acreage of maize harvested	By 20 Sep 78	228,000 mou.[4]
Ssu-mao Prefecture		
Mo-chiang County		
Acreage of early-maturing crops	31 Aug 78	32,000 mou.[5]
Total output of early-maturing crops	31 Aug 78	Increased by 66.3 percent over that in 1977.[5]

Item	Year	Data
Ta-li Pai Autonomous Prefecture		
Ta-li County		
Average per-mou yield of wheat	2 Sep 78	Exceeded 500 catties.[1]
Wen-shan Chuang-miao Autonomous Prefecture		
Ch'iu-pei County		
Acreage afforested	In Summer 78	961,100 mou.[2]
Acreage afforested	1974	253,400 mou; 28 percent more than areas afforested before the cultural revolution.[2]

Sources: 1. Hong Kong CHUNG-KUO HSIN-WEN 2 Sep 78 p 2
2. Kunming Yunnan Provincial Service in Mandarin 1100 GMT 27 Sep 78 HK
3. Kunming Yunnan Provincial Service in Mandaran 1100 GMT 19 Sep 78 HK
4. Kunming Yunnan Provincial Service in Mandarin 1100 GMT 26 Sep 78 HK
5. Kunming Yunnan Provincial Service in Mandarin 1330 GMT 31 Aug 78 HK

CSO: 4006

II. GENERAL INFORMATION

NEED TO IMPROVE WHEAT BREEDING IN NORTH CHINA STRESSED

Peking CHUNG-KUO NUNG-YEH K'O-HSUEH [SCIENTIA AGRICULTURA SINICA] in Chinese No 1, Feb 78 pp 12-18

[Article by Tsai Hsu [5591 2485] of the Department of Agriculture, North China Agricultural College: "Review of Wheat Breeding in North China and a Look at Its Future"]

[Text] The demand for varieties of wheat has increased along with expansion of the movement to learn from Tachai in agriculture and progress in basic construction of farmland water conservation projects and in scientific farming. For wheat breeding to lead wheat production we must sum up the historical experience and push the work of wheat breeding to its peak. We must strive to develop new multiline varieties of wheat adapted specifically to different regions, different soils, different levels of fertilization and different planting and cultivation methods by the use of advanced technology and through many ways based on extensive collection of and research on primary materials for wheat breeding. We must also speedily establish a sound administrative system and a whole system to develop and propagate superior seeds. Purity and quality of superior seeds must be maintained. Changes must be made in time, so that the superior seeds can be fully utilized to increase yields. The following is a discussion of some views on how our present needs can best be served by wheat breeding.

Goals of Breeding Wheat Must Emphasize High-Yield Varieties and Medium-Yield Varieties Equally

Since the founding of the People's Republic, many offices in charge of wheat breeding have been able to clarify the goals of wheat breeding in the respective localities through massive efforts and practice. Since our nation's single wheat crop yield has shown continuous increases, many wheat breeding workers have concentrated their attention on selective breeding of high-yield varieties to sustain such increases. However, this should not mean relaxing efforts in the selective breeding of medium-yield varieties. The percentage of land yielding 1,000 catties of wheat per mou in the northern

regions of North China is not high at present. Therefore, the present goal in wheat breeding should be equal emphasis on medium-yield varieties and high-yield varieties. Especially in the massive alkaline-saline soil regions of the coastal provinces, a new variety suitable for planting in these areas has yet to be developed. In the great northwest loess plateaus, old varieties still cover a substantial area. We must direct our attention to this situation.

Different types of wheat varieties have different needs for fertilizer and irrigation. In general, the potential high-yield varieties can be fully developed only with maximum fertilization and irrigation. According to surveys conducted in the Honan, Chenchow and Hsinhsiang areas, the recommended large-area, high-yield variety of the Yellow River Valley "Ah Fu [7093 1133]" often did not perform as well as local varieties whose yield was below 350 catties per mou. Again, for example, the Shantung Yentai region's selectively bred high-yield (1,000 catties per mou) variety called "You Pao Mai [5740 0545 7796]," which is highly tolerant to fertilization, did not perform as well as the recommended varieties "Chinan No 6 [3444 0589]" and "Chinan No 9 [3444 0589]," whose yield was between 400 and 500 catties per mou.

Many such cases show that at the present time we must still actively develop selective breeding of medium-yield varieties to satisfy the need for large-area production of new varieties. Of course, developing high-yield varieties and medium-yield varieties should not be completely separated. Some varieties can yield with medium amounts of fertilization as well as a high level of fertilization. In the selective breeding of high-yield varieties with great high-yield potential, the conditions for cultivation which can create high yields must be emphasized, so that consecutive and selective breeding of high-yield varieties can be effectively realized.

Strengthen Work in Classification of Original Materials

Correctly Select Varieties for Breeding

Expand the Scope of Breeding

Raise Effectiveness of Breeding

1. Strengthen Work in Classification of Original Materials

Original materials are the bases for breeding work. They must be collected extensively and classified systematically according to detailed biological and economic characteristics (such as determining the stages of growth, high-yield capability, resistance to disease, resistance to adverse weather, and quality) so that relative materials (strains) meeting the requirements of breeding can be selected. At present the work done in this regard is not adequate. It is a weak link. Demands must be made to introduce new

materials according to plan, clearly distribute the work among various related units, carry out the duties speedily, begin the work of determining the major characteristics of the varieties of wheat and compile a reference for the selection of relative strains for breeding. We must realize that the more effort we put into the work of classification of varieties, the more we can increase the active role of selective breeding of relative strains and reduce blind experimentation. For example, a variety which resists rust must be able to fight not only against stripe rust but also against leaf rust and stem rust. The variety must be able to resist not only one or two types of physiological forms but also various new physiological forms. Therefore, selection of relative strains is almost impossible if original materials are not comprehensively classified. Comprehensive classification of original materials is best done at several localities to observe the variety's characteristics, such as adaptability and rust resistance.

2. Correctly Select Varieties for Breeding

Correctly selecting varieties for breeding is the key to crossbreeding. If relative strains are not selected and bred properly, much effort will have been wasted, causing a waste of manpower and material resources. Many people have written and published articles on the principle of selective breeding of relative strains. We have also done so. The following discusses two problems and the related experience.

(1) Utilization of regional varieties: All of the famous varieties bred by the many outfits throughout the nation have at least one parent regional strain, such as "Pi Ma No 1 [4310 5818]" and "Pi Ma No 4 [4310 5818]," which are hybrids of "Pi Yu [4310 3768] X Na Tsa Nau [5818 5741 7796]"; "Nungta No 311 [6593 1129]," "Nungta No 36 [6593 1129]," "Nungta No 183 [6593 1129]," "Peking No 5, Peking No 6 and Peking No 7," and "Shih Chia Chuang 407 [4258 1367 8369]," which is a relative of "Victory wheat X Yen Ta No 1817 [3601 1129]." All these varieties have inherited the local varieties' weather resistance, prolific growth pattern and floweriness. They also incorporate some features of foreign varieties (such as strong disease resistance) to overcome the lack of disease resistance to local varieties. Adaptability and high yield potential have thus been increased, and successful massive planting over large areas has been realized. This has been a proven successful experience in wheat breeding work. China is an ancient agricultural land with a wealth of wheat varieties. Because of natural selection and human selection over a long period of time, China's varieties are superior to those of other nations in cold resistance, drought resistance, prolific growth characteristics, floweriness and fruitiness and early maturity. All these characteristics should be emphasized in selective breeding of relative strains. Therefore, in hybrid combinations it is important to use regional varieties.

(2) Cold resistance: Frost damage is one of the important factors preventing wheat crops of the winter wheat areas of the north to have stable yields.

Resistance to frost damage is also an important goal in selective breeding of superior varieties. In recent years, frost damage has been reduced because of the popular application of winter irrigation, continuous improvement of the soil, fertilizers and water conservation and the continuous rise in agricultural standards. Some units have relaxed their demands for cold resistance in the selective breeding and propagation of new varieties of wheat. The cold winter of 1977 and spring of 1978 caused a lot of wheat plants to die en masse. A comparative experiment with wheat varieties conducted by the Tungpeiwong Agricultural Farm's Scientific Technique Station, Peking, revealed that the death rate of different varieties ranged from 10.7 percent to 87.8 percent. In suburban Peking, where new varieties of wheat with weak cold resistance were planted, winter damage to the crops was severe. Cold resistance of new varieties is important.

3. Enrich Relative Strains' Hereditary Base, Expand Scope of Breeding

Practice at home and abroad has proven that enrichment of the hereditary base of relative strains and creation of massive mutations are beneficial to the selection of superior hybrid descendents. In reviewing the history of our nation's wheat breeding, we see that many present varieties came about through selection of hybrid combinations. At present there is insufficient research in the characteristics of relative strains. We have only a minimal understanding of the major characteristics of the hereditary cycles of relative strains. Especially when new varieties are continuously being bred domestically and more and more seeds and strains are being introduced from abroad, detailed and lengthy research has been sacrificed for speedy utilization of these new varieties. Thus, it is more important to select as relative strains those varieties that have utility value and that have performed well in a particular locality. By creating more combinations from these strains and observing their performance through F_1 and F_2 generations and by eliminating the less suitable strains, a single strain can be selected from among the better combinations.

In hybrid combinations, triple hybridization and double hybridization often result in greater change. When we first started breeding work, the main method used was the single-cross method, using foreign varieties' resistance to rust to improve the domestic varieties' lack of rust resistance and to achieve stable and high yields. Later on, in breeding varieties that are resistant to stripe rust and leaf rust and that have strong stems and large spikes, triple- or double-hybridization methods are used. In triple-cross combinations, the strong stem and large spike variety "O Kuan 186 [7709 0385]" was crossed with rust resistant and early maturing variety "Nungta 17 [6593 1129]" and then with the introduced variety "Tsao Yang Mai [2483 3152 7796]," which is rust resistant, high yielding and resistant to lodging. Finally, the "Nung Ta 45 [6593 1129]" and "Eastern Red" varieties were created. These combined the properties of rust resistance, strong stem and large spike. The "Nung Ta 17 [6593 1129]" and "O Kuan 186 [7709 0385]" varieties, which were the result of single-cross combination matured late,

had a lot of shortcomings and were eliminated after only a few generations. Hybridization of single superior F_2 or F_3 generation varieties selected from hybridization of two superior strains or crossing with other varieties or strains can also achieve the same goals.

The Peking Agricultural College has experimented with over a thousand varieties in hybrid breeding, crossing single strains and double, triple and even multiple strains. Results suitable for mass planting and extensive utilization number little more than 10 varieties. Similar work was done in foreign countries. Mexico's International Wheat and Corn Research Center does a lot of work in massive combinations for wheat breeding to create more differences between relative strains. Hybridization was done twice a year. One thousand two hundred hybrid combinations were done in the winter breeding nursery, and 800 hybrid combinations were done in the summer breeding nursery. The first hybrid generation was planted in fields seriously affected by rust disease. Hybrids that were afflicted by rust amounted to 40 percent. These were eliminated. The F_2 stock was planted in four localities for separate cultivation. Each hybrid combination had 400 plants. Selection of F_2 stock plants was extremely precise. The experience proved the importance and necessity of mass hybridization and combination under present circumstances. Through mass hybridization the hereditary characteristics of relative strains can be thoroughly studied, the varieties' ability to mix or combine with each other can be understood and forecasting the selection of hybrid combinations can be better realized.

Pay Attention to Cultivation and Selection of Offspring Generations of Hybrid Strains

Cultivation and selection of offspring generations of hybrid strains are the most important links in the work of hybrid breeding. To select the superior variety with all the desired characteristics from among many mutated varieties, it is necessary to pay attention to the conditions of cultivation and be strict in the selection of offspring generations.

The conditions of cultivation greatly affect the results of selection. Only when a set standard is applied in both cultivation and selection can a variety with all the desired qualities be efficiently selected. For instance, to selectively cultivate high-yield varieties, a high level of water conservation and fertilization must be provided. To select and cultivate varieties for large-area cultivation, medium or upper medium levels of water conservation and fertilization must be provided. Appropriate conditions must be provided for experimentation to determine the disease resistance and weather resistance of the varieties. Generally speaking, a high level of water conservation and fertilization is conducive to the formation of high-yield characteristics. Low water conservation and fertilization is conducive to the formation of weather resistance and adaptability. When two conflicting characteristics cannot be cultivated under the same conditions at the same time, then a selection must be made to cultivate in many different localities

or in separate nurseries (for instance, if we want to cultivate a variety possessing both high yield and adaptability characteristics).

In the past the Peking University's agricultural college cultivated hybrid wheat offspring in nurseries set up in both dryland and watered land. Final selection was based upon results from the two nurseries. The single plant with the best qualities was selected and its seeds divided into two batches. Each batch was planted in a separate nursery during the latter part of the year. Sometimes late generation varieties were planted in localities with poor water conservation and fertilization conditions for further cultivation and assessment in selecting disease-resistant and adaptable varieties.

To hasten cultivation of offspring generations for more hybrid combinations, the mixed planting method can be used. Early generations of hybrid varieties yielding two to three generations of offspring crop a year and intermixed under different regional conditions or in greenhouses can be selected as to their height, disease resistance, maturity and weight of their grains. Other simpler ways include trimming away the overgrown ears and removing the underweight grains by machine.

Hasten Selective Cultivation of Physiological Forms Resistant to Stripe and Leaf Rust and Their New Varieties

Stripe rust of wheat occurs often in the northern regions and greatly affects wheat production. It is one of the major factors affecting the stability of wheat yields.

Since 1949 four rust-resistant varieties of wheat in China's northern winter wheat regions have lost their resistance to rust. Each occurrence was accompanied by a change in the physiological form of stripe rust bacteria. The first occurrence was in 1955-59. The emergence of the physiological form of "Tiao Chung No 1 [2742 0022]" led to contagious spreading of rust disease in the large areas where "Pi Ma No 1 [4310 5818]" wheat was planted. Reduction of yield resulted. The disease spread to the northern parts of North China, causing the stripe rust-resistant varieties of the region to lose their resistance. The second occurrence was in 1960-62. The "Tiao Chung No 8 [2742 0022]" and Tiao Chung No 10" physiological forms emerged, causing the rust-resistant varieties of the northwest "Northwest No 134" and "Shennung No 9 [7104 6593]" to lose their rust resistance. The "Tiao Chung No 13 [2742 0022]" emerged in Szechuan Province. Not long afterward the rust-resistant varieties such as "Nanta 2419 [0589 1129]," derived from physiological forms "Tiao Chung [2742 0022] Nos 1, 2, 8, and 10," lost their rust resistance in the Szechuan and Central China regions. This spread to the rust-resistant varieties of "Peking No 8" and "Nungta No 311 [6593 1129]" as a contagious disease. In 1964 the northern parts of North China were ravaged by stripe rust disease. The fourth occurrence began several years ago. It was manifested in the emergence of physiological forms "Tiao Chung [2742 0022] No 17

"and 18." The physiological form No 19, which has become the dominant superior physiological form in the Shensi and North China regions during the past 2-3 years, has caused the "Ah Po [7093 0514]" and the "Feng Chan No 3 [6265 3934]" varieties in the Szechuan, Yunnan, Kansu, Tsinghai and the Central China and Shensi regions to lose their rust resistance. The "Taishan No 1" variety, which has been planted over the widest regions, was seriously affected in recent years in southern Kansu. If physiological form No 19 becomes contagious, it will bring new damage to production. This is a problem which must be watched.

The above facts suggest that the continuous emergence and spreading of new physiological forms are the major reasons rust-resistant varieties lose their resistance capabilities. Years of regular research on rust bacteria by our plant life preservation workers show that degeneration of rust resistance of superior wheat varieties is hastened by the singularity of the varieties and of their resistance to bacteria in overwinter and oversummer regions afflicted by stripe rust bacteria. For example, the greater northwest regions of the Kansu-Tsinghai plateau are the base area of the Yellow River and Huai River areas' winter wheat stripe rust bacteria during the oversummer periods. Massive planting of the same rust-resistant varieties or the same bacteria-resistant varieties in oversummering and overwintering regions will only provide more favorable parasitic conditions for the physiological forms of rust bacteria to propagate and multiply more rapidly. Propagation of harmful new physiological forms has caused the originally rust-resistant varieties to lose their resistance in a short time. The "Pi Ma No 1 [4310 5818]," "Nan Ta 2419 [0589 1129]" and "Ah Po [7093 0514]" are proof of such losses due to this cause. Therefore, in areas where rust disease passes over summer or winter, different varieties with different bacterial resistance should be planted according to plan to cut off the annual cyclical link of rust disease so that accumulation and propagation of new physiological forms of rust bacteria can be controlled and the number of years of rust-resistant varieties can be lengthened. These are all important measures of strategic significance in the fight against rust disease. From the viewpoint of wheat breeding, selective breeding of new varieties with different types of bacteria resistance should be done more intensively, so that the present problem in some regions where successor varieties cannot be found is changed. As regards breeding of rust-resistant varieties, work in the following areas should be intensified:

1. Extensively Collect Rust-Resistant Varieties and Sources

Breeding of rust-resistant wheat varieties in a region is always limited to only a few varieties. In hybrid varieties and their offspring or newly-bred varieties, rust resistance has a very defined hereditary base. As soon as these are cultivated en masse, the inherited rust-resistant capability will be lost. Therefore, the basis for selective breeding of different bacteria-resistant varieties is to collect primary materials from all over the world, strengthen the work in determining rust resistance and enrich the source of relative strains of rust-resistant varieties. Through field experimentation

in regions where rust disease is rampant and where crops have been seriously afflicted (such as determination of physiological forms during the seeding stage and during the mature stage), the varieties with different bacteria resistance are screened as stock for relative strains. It is generally believed that disease-resistant varieties in field experiments are probably varieties with nonspecific resistance characteristics. There is also the possibility of screening for rust-resistant varieties suitable for local production and direct utilization.

2. Selective Breeding of New Varieties Having Multiple Resistance Genes

Present production demands the selective breeding of new varieties capable of resisting more physiological forms. They must be able to resist not only the current physiological forms but also superior forms which may become rampant, even though as yet they are of minimal proportion. In selection and combination of relative strains, the varieties chosen must be able to resist a multitude of physiological forms. They must also supplement each other in resisting different physiological forms. The selection must be based upon the results of determining physiological forms at the seedling stage and the results of determining bacteria types of such forms in mature plants. If distribution of the varieties can be linked, selective cultivation of varieties (relative strains) resistant to bacteria damage and bred specifically for the wintering and oversummer regions can thus be carried out according to the principle of division of labor. The varieties selected may yield more ideal results when used in actual situations.

3. Use of Greenhouses and Cultivation in Different Localities

To hasten the selective breeding of new varieties resistant to stripe and leaf rust and having strong weather resistance and adaptability, the previously cultivated plants must be exchanged and replanted in different locations. Greenhouses should be used for further cultivation to hasten the process. Yield potential and regionality of the plants should be determined. All of this will provide important experience in selective breeding of disease-resistant, superior plants. Work in these aspects must be realized.

4. Establish a Strong Sytem of Exchanging Superior Plants

Success in selective breeding and use of disease-resistant varieties depends upon establishing a system for exchanging superior varieties. Rust damage can be reduced by periodically changing the varieties and by strip cropping. These efforts should be aimed at particular situations. A strong system of cultivating and propagating inferior wheat varieties and the inspection and preservation of successive varieties with different bacteria resistance must be established so that the varieties can be reasonably distributed. Combinations of many varieties or use of strip cropping can cut off the annual life cycle of rust bacteria, reduce the amount of bacteria, prevent the emergence and development of new physiological forms and extend the useful years of

superior rust-resistant varieties in order to better insure high and stable wheat yields.

In recent years, domestic work in selective breeding of disease-resistant varieties has been inclined toward selective breeding of nonspecific resistance or level resistance in the varieties. Nonspecific resistance means resistance to many physiological forms. Nonspecific resistance is controlled by the microsomes. It is stable and long-lasting resistance. Many people abroad have discovered that some varieties can resist rust for a long time--for example, the "Teh Lang Pu Erh" of the United States and Canada's "Hsi Erh Ko Ko" varieties, which have lengthy resistance periods. The stripe rust-resistant variety "Ping Yuan 50 [1627 0626]" of Honan Province has for many years retained its resistance. In the 1950's Mexico's (Paolago) brought out the back-cross breeding method to selectively cultivate multiphyla varieties with comprehensive disease-resistance capabilities. This is being widely adapted now to combine specific resistance and nonspecific resistance in multiphyla varieties. Workers abroad are studying the types of resistance to the three kinds of rust diseases and also selectively cultivating new varieties which are resistant to other diseases as well. This is the international trend.

Selective Breeding of Short-Stem, Lodging-Resistant and High-Yield Varieties

Breeding of high-yield wheat is related to wheat production. Since communization in 1958, breeding of high-yield crops has included emphasis on the production structure and selective breeding of plant types. This led to formulation of the goal of breeding two ecologically different types of wheat in the North China regions. Selective breeding of the multiple-ear type was adopted for the late-maturing winter wheat in the north. Selective breeding of the large-ear type was adopted for the winter wheat regions of the Yellow River Valley. The common goal was to breed varieties which are rust resistant, lodging resistant and sensitive to fertilization and which have proportionate physical form and increasing yield potential. The methods used were not the same as those for selective breeding of high-yield varieties or those used to achieve the goals, characteristics and increasing yield potential of high-yield varieties. Due to a rapid increase in unit area yield, selective breeding of stunted wheat has been emphasized. Domestic and international research is being carried out in production structure, plant type and short-stem varieties to further the potential of increasing yield per unit area based on presently available varieties. Following is a discussion concerning breeding of high-yielding short-term varieties.

Cultivation of short-stem varieties was launched in Shensi's high-yield wheat regions. The Shensi Hsienyang Regional Agricultural Science Institute and the Northwest Agricultural Acacemy selected for the Shensi region the "Hsien Ai No 1 [0752 4253]" and "Ai Feng No 3 [4253 6265]." These varieties were propagated throughout the region. The "You Pao Mai [5740 0545 7796]" selected by the Shantung Yentai Regional Agricultural Science Institute, the "Chinan

"An No 6 [3444 0589 4253]" selected by the Shantung Agricultural Academy, the "Taishan No 4" selected by the Taian Regional Agricultural Science Institute and the "Cheying No 1 [6774 1714]" introduced from abroad by the Honan Agricultural Science Academy have all been planted over large areas. They have eliminated to a certain degree the problem of lodging of high-yield crops. At present North China's cultivation workers are striving for selective cultivation of high-yield varieties capable of producing 1,200 to 1,500 catties per mou.

Short-stem wheat can be divided into the short (50 to 60 millimeters) and the semishort (70 to 80 millimeters, or medium-height stem). It is generally believed that plants with medium-height stems of 70 to 80 millimeters are better. Under heavy fertilization, short-stem plants are planted closely. Moisture and dampness remain among the plants, and it is difficult for sunlight to reach the leaves. Crop disease can easily emerge. Soil fertilizers will also delay maturity. The crops will be afflicted by xerothermic disease, causing premature dryness. In selective cultivation of medium-height, lodging-resistant varieties with great high-yield potential, disease resistance as well as resistance to early maturity must be combined. In 1960 and 1961 our academy used the Japanese short-stem varieties "Hsiao Chi Yeh Mu [1420 0679 6851 2550]" and "Hsiao Ying Su [1420 4981 4725]" as relative strains for hybrid combination with Chinese varieties. The offspring generations suffered seriously from diseases, matured late and wilted prematurely. They were all discarded.

The type of the plant is an important characteristic to look for in selective breeding of high-yield superior varieties. It is also the key characteristic in increasing the variety's high-yield potential. Recently, breeding workers have increasingly emphasized the importance of selecting the proper plant types. An ideal plant type must have these features: the plant is tight. The leaves are wide, short and erect. The stalk's foliage must be small. Leaves must have a dark color, and the last leaf must be strong and must function well. These features will assure that sunlight, moisture and mineral nutrients will be efficiently absorbed and that photosynthesis will efficiently work toward enriching the grains and increasing the number of ears per unit area. These features are also the important factors in realizing 1,000-catty yields. Strong resiliency and tenacity of the stalk will reduce damage by wind.

Structure of the ears and crop yield are directly related. The grains must be large and the stems must be short. The weight of the grains proportionate to the weight of the entire plant should be emphasized. Ordinarily, the weight of the grains of the tall-stem variety is from 20 to 60 percent of the weight of the plant, and the weight of the grains of the short-stem variety can reach 30 to 40 percent of the weight of the plant. Clavate ears are dense at the tip, resulting in poor fruiting. Spindle-shaped ears have a weak growth and easily degenerate into small unfilled ears. Therefore, only large oblong ears with a lot of grains should be selected. According to

analysis of the typical high-yield type of wheat in northern China, many such high-yield varieties are cultivated under different procedures and methods according to their characteristics and weather conditions. All of these measures may create a proper planting structure for high-yield cropping. The capability of each variety to produce a high yield is very different. Each climatic region has its own most suitable plant type and plant structure. For example, the "Nung Ta 139 [6593 1129]" and "East is Red No 3" are both superior varieties propagated over a large area in the northern part of North China's late-maturing winter wheat region. These varieties have both yielded 1,000 catties per mou. These two varieties have strong tillering ability and resistance to chill. However, the number of earings are different. The "Nung Ta 139 [6593 1129]" has a high earing rate, usually reaching 500,000 to 550,000 ears per mou. The "East is Red No 3" yields only 400,000 to 420,000 ears, short of the 1,000 catty per mou. The former variety yields large numbers of ears, whereas the latter variety yields large but not so numerous ears. It has been shown that better yield can be reached by planting the variety which yields numerous ears in the northern late-maturing winter wheat regions. The varieties with medium-height stalks selectively bred in these regions must also possess stronger tillering ability and chill resistance. Because the region's winter temperatures fluctuate a great deal, severe cold has often caused a reduction of seedlings and broken ridges in the fields. Weak tillering ability, weak resistance to chill and few earings will render the variety unsuitable for production in these regions. The expected number of ears will not result, and high yield will be impossible. Assuring a yield of a predetermined number of ears is especially important, since in recent years the trend has been toward planting fewer base seedlings (100,000 to 200,000 seedlings). A study of 3 consecutive high-yield years in the Peking region shows that the "Nung Ta 139 [6593 1129]" variety, which yielded 1,000 catties per mou, produced from 500,000 to 550,000 ears per mou with 28 to 30 grains on each ear. Weight per thousand grains was between 36 and 40 grams.

Winter wheat of the Yellow River Valley should be of the large-ear variety. By controlling the number of ears to produce an adequate number of grains per ear and by producing a certain weight per thousand grains, the yield can be made relatively stable.

In view of the above, we should selectively breed different high-yield superior varieties for different localities. In the northern late-maturing winter wheat regions the varieties must be resistant to the winter climate. Their stems must be of medium height. They must have strong tillering ability, strong chill resistance and a high earing rate. They must be the type that yields numerous ears. Their stalks must be resilient and resistant to lodging. The shape of the plant must be compact. The leaves must be erect, not too large and not too small. They must resist stripe rust, leaf rust, stem rust and powdery mildew infection. They must also possess certain resistance to yellow dwarf disease and be able to defoliate in the later growth period. In the winter wheat regions of the Yellow River Valley, varieties that are of the winter or semiwinter types with medium-height

stalks and medium tillering ability should be selectively bred. These varieties should be resilient and resistant to lodging and have large ears. The shape of the plant must be compact. The leaves must be erect, resistant to stripe rust, leaf rust and stem rust, wilting and powdery mildew. They must also be able to resist dryness, heat, cereal scab and bushy stunt.

Within the same natural habitat, different cultivational conditions should also be considered to selectively cultivate tall-stem varieties of different types that have yield potential so that the superior varieties can meet the demands of medium-level fertilization.

In selective combination of relative strains of short-stem variety breeding, hereditary traits of the plant are important. In crossing a tall-stem variety, the first generation hybrid is usually a tall-stem variety. Short-stem offspring emerge from the second generation. In the theory of heredity, the shortness of the stem is a recessive trait. In the F_2 generation, not many short-stem offspring will emerge. Emergence of the short-stem offspring is also influenced by the relative strains used. Short-stem offspring of the F_3 generation will be more uniform in height. At present the source of short-stem strains is limited, and the results of hybrids are not satisfactory. The strains most often used are the "Hsien Nung 39 [0752 6593]" and its offspring selectively cultivated by the Shensi Hsienyang Regional Agricultural Science Institute, the "Ai Feng No 1-3 [4253 6265]," "Ai Kan Tsao [4253 4427 2483]," the Italian strain "s.t.," the U.S. strains "Ken Ssu [2704 1835]" and "Niu Ken Ssu [4781 2704 1835]" and Afghanistan's "medium-height 36." All of these mother strains have drawbacks. For example, the "Hsien Feng 39 [0752 6593]" is seriously affected by leaf rust and wilts early. The "Ai Feng No 3 [4253 6265]" is affected by leaf rust, powdery mildew and leaf wilting. Its wintering and growth characteristics are poor, and the number of ears are few. The strain introduced from the United States matures too late and is not resistant to stripe and leaf rust. The Italian "s.t." strain does not winter well. After the ears are removed, the leaves dry up. All of the above varieties are weak in chill resistance. Because of this shortcoming, the source of short-stem varieties of the northern late-maturing winter wheat region must be expanded. Strongly chill-resistant relative strains developed by horticulture should be selected to improve chill resistance. Since 1970 Peking's Northeast Ward State Agricultural Science and Technology Station has begun cultivating short-stem wheat and has extensively collected many short-stem and medium-height varieties, using single and multiple crossings of some 500 to 600 hybrid varieties bred each year under normal cultivating conditions. Progress was made in a relatively short time. Through massive application the resulting short- or medium-height varieties were bred with relative strains of the geographical area improved through horticultural methods. The hybrids are screened, and the superior short-stem or medium-height varieties are crossed repeatedly through hybridization and phototrophic cultivation with horticultural strains or disease-resistant strains. The medium-height variety "5238" (offspring of 183 X USSR's medium-height variety) created by the Peking Agricultural College and "medium height 36" were taken as the mother strain and bred with the better yielding varieties

varieties selectively cultivated by that station in recent years, such as "You Mang Pai No 1 (021) [2589 5345 4101]" and "You Mang Pai No 2 (036)." Although improved blooming ability, chill resistance, early maturity and rust resistance were found in offspring of short-stem and medium-height varieties resulting from such hybrid combinations, the offspring wilted prematurely and the grains were not full enough. Therefore, other introduced varieties that were high yielding and rust resistant, such as "Shan Chien [1472 0467]" and Lo Fu Lin [3157 1133 2651] No 13" were bred with these offspring. Some hybrid combinations resulted in short-stem plants with strengthened rust resistance, and the problem of premature wilting was overcome. In the process of selective cultivation the short-stem offspring in the F_2 generation plants should number from 3,000 to 5,000 to produce a single plant having all of the desirable qualities. Usually the percentage of producing a single superior plant is very low. The success rate in a good hybrid combination is only 1 to 2 percent.

Selection of the source plants must include both short-stem and medium-height varieties. This is because some plants with medium-height stems have latent short-stem traits which can be brought out in their next generation offspring. This is especially important at the beginning of selective breeding of short-stem varieties when the short-stem source plants are few. Selection and rejection of such short-stem plants as source must not be too strict. When the sources of short-stem plants become numerous later on, the plant source must be carefully chosen according to the plants' combined traits. At the same time, during the early generations of selection and separation the short-stem traits are often affected by long-stem traits. Therefore, in the nursery for selective breeding the distance between plants must be increased, and special care must be taken.

A review of the wheat breeding work of our northern winter wheat regions shows that, although much progress has been made, interference and sabotage by the "gang of four" has caused a lag in our progress as compared with the standards achieved internationally. To selectively cultivate new varieties of different regions and different productive levels speedily and thriftily, cooperation among the professions must be realized, and various forces must be actively organized to strengthen basic theoretical research, such as the laws governing economic characteristics and inheritance of rust-resistance capability and the study of ordinary combining ability and special combining ability of relative strains. Source materials (plants) must be extensively collected domestically and from abroad (including undomesticated relative plants) to conduct multilocational determination. Disease-resistant varieties must be screened in areas where a particular disease is rampant to select those varieties specifically resistant to such diseases as bushy stunt, yellow dwarf, leaf wilting, and powdery mildew. In expanding resistance to bacterial diseases, the disease-resistant genes of undomesticated plants must be transferred and utilized so that intermediate sources carrying resistance to many bacterial strains can be selectively bred. A method to determine nonspecific resistance must be studied and developed. The problem of techniques of establishing a standard resistance through selective breeding must

be probed to facilitate selective cultivation of specific and nonspecific resistance in new varieties. Quality in breeding must be emphasized. Protein content must be determined, beginning with the third hybrid generations. Work in determining quality of source plants must also begin. A batch of varieties with a high content of protein and essential amino acid should be screened and selected to serve as relative strains for hybridization.

To carry out the research work mentioned above, a cooperative effort on a grand scale involving professionals in plant life study, plant life preservation, physiology, biochemistry, cell study, cultivation and weather study must be organized so that everyone will contribute to the selective cultivation of new varieties.

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RESEARCH ON HOW TO STOP COTTON BOLL SHEDDING CARRIED OUT

Peking KWANGMING DAILY in Chinese 27 Aug 78 p 2

[Article: "How To Lessen and Stop Cotton Boll Shedding; the Chinese Agricultural Studies Association and Shantung Provincial Agricultural Science Institute Hold an Academic Discussion Meeting on Cotton"]

[Text] (NCNA Tsinan, 25 August) Agricultural science workers in our country have already had some successes in research on how to lessen and stop cotton boll shedding. However, to make a genuine breakthrough in this research, great effort is still needed. Facts presented at the recent academic discussion meeting on cotton held in Tsinan illustrated this point.

At the conference agricultural science workers exchanged their experience, showing that currently, delightful results have already been achieved with regard to the relations between the external conditions of light, temperature, water and fertilizer, etc. and the shedding of cotton squares and bolls as well as the relations between the process of physiological change in the cotton plant and the shedding of cotton squares and bolls. The Shanghai Botanic Physiological Research Institute of the Chinese Academy of Sciences, and the Cotton Research Institute of the Chinese Academy of Agricultural Science, etc. conducted a great deal of research to explore the laws governing the shedding of cotton bolls under different conditions. Kiangsu Agricultural Institute, Liaoning Cotton and Hemp Research Institute, etc. researched the influence of weather factors on the shedding of cotton bolls. This facilitated the search for new techniques to improve the conditions for the growth of cotton and to overcome the harmful influence which high temperature and heavy rainfall exert on the cotton's growth.

The research of many units has proven that the shedding of cotton squares and bolls can be reduced if the vegetative growth and reproductive growth of cotton can progress in harmony. The Shantung Provincial Agricultural Science Institute did research into the biological law governing the shedding of cotton squares and bolls and also the influence of external conditions on the shedding, searching for methods to lessen and stop the shedding. By taking such comprehensive measures as pot cultivation of

seedlings, dense growth of 2,000 cotton plants per mou, application of more fertilizer and strengthening of field management, they have succeeded in cutting down the shedding rate. Last year in an experimental plot of one mou, the shedding rate fell from the previous 70 percent or so to 34.6 percent, and 271.5 chin of ginned cotton was harvested. Wu Chi-ch'ang, a nationally known model cotton grower, has borne in mind Premier Chou's behest to do research into this problem. Despite the brutal oppression of the revisionist line executed by Lin Piao and the "gang of four", he has struggled hard for more than 10 years and made remarkable achievements. He analyzed the various conditions which cause the shedding and adopted a series of steps such as using a hand pinch to stop the irrigation of seedlings, and planned pruning, etc. Furthermore, he has bred a new type of cotton consisting of one plant with two stems, and several stems with two layers. In this way he succeeded in reducing the shedding rate from the 70 or 80 percent in the past to about 40 percent at present.

Although we have achieved these results, the conference held, we are now still not quite clear about the physiological causes of the shedding, and our research on how to reduce and stop the shedding is even more inadequate. Reducing the shedding of cotton squares and bolls is a very complex problem. The conference has decided that more strenuous efforts should be made and coordinated in order to solve this difficult task.

The conference was convened by the Chinese Agricultural Studies Association and Shantung Provincial Agricultural Science Institute on the twentieth anniversary of Chairman Mao's inspection of Shantung cotton fields. At that time Chairman Mao had directed agricultural sciences research units in Shantung to research the causes of the cotton boll shedding and whether or not the shedding could be lessened or stopped. In accordance with Chairman Mao's directive, the units concerned had carried out this research, but it was suspended for many years due to the interference of the revisionist lines of Lin Piao and the "gang of four". Presently, this research work has again resumed its activity.

Participating in the conference were representatives of agricultural scientific research units and institutes of higher education from 16 provinces, municipalities and autonomous regions which grow cotton, and also representatives from the Botanical and Physiological Research Institute of the Chinese Academy of Sciences, the Cotton Research Institute of the Chinese Agricultural Science Academy, and also related units in Shantung Province, totaling 89 people. Representatives of 12 units delivered academic reports at the conference.

9138
CSO: 4006

PLASTIC MEMBRANES USED IN PREVENTING LEAKAGE IN IRRIGATION DITCHES

Peking KWANGMING DAILY in Chinese 5 Aug 78 p 2

[Article: "Plastic Membrane Has Many Advantages in Preventing Leakage by Diffusion in Irrigation Ditches"]

[Text] Preventing leakage by diffusion in irrigation ditches is currently an important task for capital construction on farms. Presently, most of the irrigation ditches throughout the whole country have no measures such as leak-proof layers to prevent diffusive leakage. Therefore, in the process of transporting water, nearly half of the water intended for irrigation escapes through diffusion. A leak-proof layer in irrigation ditches not only can reduce the quantity of water lost through diffusive leakage, thereby expanding the irrigated areas, but also can prevent alkalization in irrigated land so as to give full range to the beneficial results of water conservation projects. Prevention of ditch leakage could be adapted to local conditions, and raw materials locally available could be used. Such materials as laid stones, mortar, cement concrete, asphalt concrete, cemented mud, ceramic slates, and compressed clay could be used. Adopting plastic membranes as layers to prevent ditch leakage is one type of new way to achieve more, faster, better, and more economical results. It has many advantages. One is the good results in preventing leakage. On the average it can reduce the loss by leakage by 90 to 95 percent. Second, construction costs are lower. In using the plastic membrane to prevent leakage, the construction cost per square meter in general is 1.2 yuan, only 1/5 to 1/10 of the cost of using cement concrete, and 1/4 to 1/10 the cost of using stone laid with mortar. Furthermore plastic membrane is light in weight and a small amount of it is needed in use, so the task of transport can be cut substantially. Third, it saves on cement and stone. One ton of plastic membrane can substitute for 100 tons of cement or 1000 cubic meters of stone. Fourth, it has good resistance to freezing temperatures. When hard substances such as brick, stone, and cement concrete are used, the problem of damage caused by freezing is not easy to solve. But no such problem has yet been found with the use of the plastic membrane. Fifth, the construction work is easy to perform, and the construction period is short.

9138
CSO: 4006

BRIEFS

ANTI-DROUGHT WORK--Party committees at all levels in Anching Prefecture have vigorously destroyed the old concept that no wells could be built in the area between the Yangtze and Huai rivers and quickly whipped up an upsurge of building wells and crash-sowing. By 21 October the prefecture had built some 20,400 indigenous wells and sown some 152,900 mou of summer-harvested crops, 112 percent more than in the corresponding period last year. Taihu County took only 4 to 5 days to build some 2,480 indigenous wells and solved the water problem for autumn sowing on 833 mou. By the middle of October Chienshan County had built some 2,800 wells and timely sown some 7,000 mou of summer-harvested crops. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

ANHWEI PREFECTURES FIGHTING DROUGHT--On 20 October the Huichou Prefectural CCP Committee sent 193 cadres--two-thirds of the cadres in prefectural-level organs--to rural areas to mobilize and organize the cadres and masses to combat drought and sow wheat. Chaohu Prefecture has built some 20,000 wells and sown six times as many crops as in the corresponding period of last year. In Chihchou Prefecture, it is estimated that 30,000 to 50,000 mou of summer-harvested crops will be sown in lakeside and riverside fields. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 28 Oct 78 HK]

ANHWEI COUNTY AGRICULTURE--The people in Huochiu County have increased the areas sown to wheat from 700,000 to 900,000 mou and the areas sown to rape from 70,000 mou to 200,000 mou in accordance with the present situation of drought. This county is one of the key wheat-producing areas in the province, and this year experienced drought rarely seen before. They have not received any heavy rainfall for 200 days in succession, and the situation of drought is comparatively more serious. In order to insure the fulfillment of autumn sowing, the county CCP committee has held a standing committee meeting and an emergency meeting of the secretaries of the party committees of the districts and communes to convey and implement the spirit of the instructions of the provincial CCP committee on anti-drought and autumn sowing. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 21 Oct 78 HK]

AGRICULTURAL PRODUCTION--By 19 October the people in Lingpi County have fulfilled sowing of 1,040,000 mou of wheat 5 days ahead of schedule. Originally they planned to plant 20,000 mou of rape but have now sown 52,000 mou, surpassing the original plan by 32,000 mou. This year the county experienced [drought] rarely seen in the past 100 years. There are 13 communes in the county resisting drought on 430,000 mou of farmland. This year 2,030 wells have been sunk throughout the county. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 21 Oct 78 HK]

HUAIPEI WHEAT PRODUCTION--By 17 October the people in the suburban areas of Huaipei Municipality have sown 41,000 mou of wheat, overfulfilling this year's autumn sowing tasks. The quality of sowing is also very good. In early September the party committee of the suburban areas of the municipality held a conference on autumn sowing with the participation of the leadership cadres of the districts, communes, brigades and production teams to seriously exchange experiences in sowing wheat in a year of serious natural disasters, discuss and make plans on the production of wheat this year, study and formulate the measures on scientific farming for reaping high-yielding and earmark 10 areas for growing wheat throughout the suburban district. Some 5 cubic meters of indigenous miscellaneous manure have been applied to each of the 40,000 mou of wheat. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 23 Oct 78 HK]

ANHWEI COUNTY WHEAT--Chiashan County reported that by 23 October the county had transplanted wheat on 400,000 mou of land, overfulfilling the yearly transplanting plan by 3.5 percent. The county has decided to transplant wheat on 130,000 mou of land more. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 25 Oct 78 HK]

AUTUMN SOWING--After reaping bumper harvests of grain, cotton and edible oil, the cadres and masses in Tienchang County were slow in planting autumn crops. The county CCP committee then urgently mobilized the cadres and masses in the county and held a conference on autumn sowing on 12 October with the participation of the cadres at the brigade level and above. Through their efforts, the daily progress of autumn sowing has increased from 5,000 to 20,000 mou. Now they have planted 140,000 mou of barley and wheat and 50,000 mou of rape on a crash basis and cultivated 22,000 mou of rape seedlings. Autumn planting is expected to be completed by the end of this month throughout the county. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 20 Oct 78 HK]

ANHWEI PREFECTURE DROUGHT--The party organizations at all levels in Anching Prefecture have increased the planned areas of wheat, barley and naked barley, beans and other crops from 880,000 to 1,193,000 mou so as to reap a bumper harvest of summer crops next year and make up the losses in agriculture this year. The prefecture experienced serious drought rarely seen in this century. In Susung, Tsungyang and Tauhu counties, the people have full use of the lake areas, and the pond and reservoir beds to plant wheat and beans on a crash basis. In Tungcheng, Yuehhsi and Huaining counties the people have urgently gotten mobilized to sink wells so as to resist drought and sow on a crash basis. By 13 October they had resisted drought and sown 677,300 mou of grain and other crops and 63,400 mou of rape. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 20 Oct 78 HK]

FUYANG PREFECTURE AGRICULTURE--Fuyang Prefecture reported that by 12 October the prefecture had transplanted wheat on 2.2 million mou of land and rape on 20,000 mou of land. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 15 Oct 78 HK]

WUHU PREFECTURE TRANSPLANTING--Wuhu Prefecture reported that it has decided to transplant summer-harvested crops on 816,000 mou of land this year, an increase of 43 percent as compared with last year; and transplant rape on 798,000 mou of land, an increase of 38 percent as compared with last year. However, the prefecture will transplant 18 percent less of green manure as compared with last year. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 15 Oct 78 HK]

AUTUMN SOWING IN AN ANHWEI COUNTY--By 5 October Fanchang County had completed sowing 130,336 mou in autumn, compared with its plan for sowing 250,000 mou in autumn. The per-mou yield and total yields of the 36,000 mou of rape and 55,000 mou of wheat in the county exceeded the previous highest levels. The total yields of the 215,000 mou of early rice was 30 million catties more than last year. Some 80 percent of the 217,000 mou of double-crop late rice are of guaranteed harvested areas. The county has completed sowing 60,000 mou of rape, 60,000 mou of wheat and 130,000 mou of green manure. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 11 Oct 78 HK]

ANHWEI PREFECTURE EXPANDS SUMMER-HARVESTED CROP AREAS--Chihchou Prefecture has expanded its areas sown to summer-harvested crops. In the past, as a result of insufficient manure and careless farming and management, the average per-mou yield was only some 100 catties. Due to serious drought this year, many people lacked confidence in sowing summer-harvested crops. In the light of the actual situation, the prefectural CCP committee has decided to expand the summer-harvested crop areas from 260,000 mou as planned to 300,000 mou, 250,000 mou of which will be wheat fields. The prefecture has decided to raise the average per-mou yield to more than 200 catties. The prefecture has decided to complete sowing 300,000 mou of summer-harvested crops around 23 October. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 11 Oct 78 HK]

ANHWEI PREFECTURE AGRICULTURE--Anching Prefecture reported that because of drought, 1.12 million mou of medium-late autumn crops was affected. Presently, vegetables have been transplanted on some 212,000 mou of land. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 3 Oct 78 HK]

ANHWEI COUNTY DROUGHT--The Shou County CCP Committee has transferred a large number of office cadres at the county level to go to the communes and brigades which are seriously affected by drought to organize and lead the masses to resist drought and conduct autumn planting. The areas which were affected by drought accounted for 75 percent of the farmland. Some 175 office cadres have been transferred to 7 districts

and 21 communes. Previously, 250 cadres had been transferred there. They have also organized the masses to take part in planting vegetables and harvesting "minor autumn" crops and to draw water from the northern part of the county to raise the water level in the southern part. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 6 Oct 78 HK]

ANHWEI COUNTY DROUGHT FIGHT--This year Kuangte County experienced drought rarely seen before. Some 91 percent of the production teams were affected. The areas affected by drought covered 87 percent of the total farming area. The county CCP committee has transferred 400 cadres on three occasions to go to the front line of antidrought struggle to exercise leadership and take part in drought fighting. The county has already set up a leadership group for production and for natural disaster fighting, while the communes and brigades have appointed persons to be responsible for these tasks. By now 10,000 mou of summer-harvested crops and 25,000 mou of vegetables have been planted throughout the county. The various trades and professions in the county have also transported 400,000 catties of various seeds and ?,000 tons of phosphatic and chemical fertilizers to support agricultural production. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

ANHWEI PREFECTURE DROUGHT--Since the beginning of this spring, rain has been scarce in Chaohu Prefecture and the drought has worsened since autumn began. The water level of the Yangtze River has continued to fall. The water level in Chao Lake has also fallen since the water gate between the Yangtze River and Chao Lake could not let in any water. According to incomplete statistics, 113 machine-driven irrigation stations throughout the prefecture could not draw in any water. The 450 reservoirs on the mountainous areas and the 140,000 ponds and lakes could only supply the needs of men and animals. Some 3.7 million mou of late and autumn crops throughout the prefecture were seriously affected. One-fourth of the production teams were seriously lacking water for both men and animals. However they have built large water-drawing stations to draw water from the Yangtze River 100 li away. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

ANHWEI PREFECTURES WHEAT--Suhsien Prefecture reported that by 16 October the prefecture had fulfilled 70 percent of the plan for wheat transplanting. At the same time Tangshan County had transplanted wheat on 500,000 mou of land. [Hofei Anhwei Provincial Service in Mandarin 1100 GMT 18 Oct 78 HK]

CSO: 4006

CHEKIANG PROVINCE UNDERTAKING WATER, SOIL PROJECTS

Peking NCNA in English 0507 GMT 23 Oct 78 OW

[Text] Hangchow, 23 Oct (HSINHUA)--Large-scale construction to improve soil and water control is now underway in east China's Chekiang Province in the Hangchow-Chiahsing-Huchow plain, one of the marketable grain bases.

The plain is in the south part of the Yangtze River delta and is noted for its high grain yield. A mild climate, fertile soil and abundant rainfall have given the plain the name "the land of fish and rice." In the past two decades, the constant efforts on building water conservancy projects have brought 80 percent of the land under irrigation. The plain gives three crops a year. Since 1970 the per-hectare yield last year increased to 8.25 tons and 870,000 tons of commodity grain was sold to the state. This accounts for 38 percent of the province's total commodity grain even though this cultivated area constitutes one-fourth of the province's total.

There are large stretches of low-lying land only 3 metres above sea level on the plain which are vulnerable to waterlogging. Transforming this land is part of the effort being made to build a good commodity grain base. Tieh Ying, the first secretary of the provincial party committee, and other leading members drew up a plan for large-scale drainage and irrigation projects after surveying the area. The plan provides for seven drainage canals with a total length of 280 kilometres leading to the Whangpoa River, three big sluice gates with electric pumping stations along the north bank of the Chientang River to drain the water from the low-lying land and 84 reservoirs to store the water from the mountains.

At present, the project to drain the water from low-lying land into Chientang River is under construction. A big sluice gate base has been laid and a 150-kilometre-long drainage canal will be completed by next May before the high water season starts.

The Hangchow-Chiahsing-Huchow plain is not only the granary of Chekiang Province but is also noted for its sideline products. It has a diversified

economy producing more than 200 items. Last year, the silkworm cocoons the area sold to the state made up 83 percent of the province's total and 30 percent of the country's total while the sale of fresh water fish made up 65 percent of the province's total. At the same time, the production of rape seeds, bamboo and pigs also made up a considerable proportion of the province's total.

Chekiang Province has provided the area with funds, materials and farm machinery for the projects. This year the area produced a good harvest of early rice and spring grain in spite of unusual dry spells and grain output increased by 450,000 tons, a local record.

CSO: 4020

BRIEFS

CHEKIANG TEA PROCUREMENT--Peking, 18 Oct--Chekiang Province had sold upwards of 50,000 tons of processed tea to the state by the end of August. This was 10 percent up on the figure for the same period of last year. The state purchasing plan was thus fulfilled ahead of time in the province, which is one of the main tea-producing areas in China. [Peking NCNA in English 0710 GMT 18 Oct 78 OW]

CSO: 4020

BRIEFS

FUKIEN MID-LATE RICE HARVEST--Various localities throughout Fukien Province have reaped a bumper harvest of single-crop mid-late rice. By 13 October the province had reaped mid-late rice on 1.4 million mou of land or 51 percent of the total area for this crop in the province. Average per-mou yield has also increased. [Foochow Fukien Provincial Service in Mandarin 0300 GMT 20 Oct 78 HK]

LUNGYEN PREFECTURE AGRICULTURE--Lungyen Prefecture reported that it has done well in minor autumn harvest. The total value derived from minor autumn harvest over the past 3 months reached 3 million yuan, an increase of 190 percent as compared with last year's same period. [Foochow Fukien Provincial Service in Mandarin 0300 GMT 20 Oct 78 HK]

ROLE OF A FUKIEN COUNTY RESERVOIR--(Tinghsi) Reservoir in Chungan County was built in 1956. As a result of good management, the reservoir with capacity of only 49 million cubic meters can irrigate 190,000 mou of fields in eight communes. [Foochow Fukien Provincial Service in Mandarin 0300 GMT 11 Oct 78 HK]

CSO: 4006

HEILUNGKIANG HOLDS MEETING ON AUTUMN HARVESTING

Harbin Heilungkiang Provincial Service in Mandarin 1100 GMT 10 Oct 78 OW

[Excerpts] The Heilungkiang Provincial CCP and Revolutionary Committees held a telephone meeting on the evening of 9 October, once again stressing that all localities should effectively do a good job in autumn harvesting, pay close attention to its quality, and resolutely realize the target of reaping 30 billion catties of grain.

The meeting was presided over by Comrade Juan Yung-sheng, standing committee member of the provincial CCP committee and vice chairman of the provincial revolutionary committee. Comrade Wang Chin-tzu, secretary of the provincial CCP committee and vice chairman of the provincial revolutionary committee, spoke at the meeting.

It was pointed out at the meeting that now is the right time to step up autumn harvesting. To thoroughly implement the provincial CCP and revolutionary committees' directive on autumn harvesting and make all efforts to do a good job in autumn harvesting, close attention must be paid to the following five tasks:

1. Ideologically and in action, it is necessary to regard autumn harvesting as the present most important task in the countryside.

2. The masses should be mobilized on a provincial scale to launch a 10-day mass grain gleaning shock campaign from 10 to 20 October. Each and every commune and production brigade and team should comb the fields once or twice before 20 October and pick up all dropped crops on the fields.

3. It is essential to strengthen the work of protecting and insuring autumn harvesting, educate the masses in this work and check the implementation of the agreements on protecting and insuring autumn harvesting. Resolute blows should be dealt at the bad elements stealing large quantities of grain and undermining autumn harvesting and at class enemies' sabotage

activities. Production brigades and teams should all strengthen militia patrols and keep watch on the fields and threshing grounds. The neighboring communes and production brigades and teams should establish joint defense systems.

4. It is essential to grasp firmly the harvesting and transportation of sugar beets. Sugar beets grow well this year, and the present principal problem is that the harvest pace is slow. If the masses do not grasp firmly harvesting and transportation, the danger exists that the crops will be damaged by the cold weather. For this, all localities should strengthen leadership over the harvesting and transportation of sugar beets.

5. All trades and professions should vigorously support autumn harvesting.

The meeting called on all localities, while concentrating main forces in autumn harvesting, to grasp well autumn plowing, seed selection and farmland capital construction. It is also necessary to fight well the three battles of collecting and storing fodder, repairing and building animal pens and preparing for animal winter care so as to insure their safety in winter.

CSO: 4006

BRIEFS

ANTI-DROUGHT MEASURES--Rural cadres and commune members in Heilungkiang are once again stepping up their efforts in tending the major autumn ripening crops, which account for more than 70 percent of the total crop acreage of the province. Earlier this year when drought conditions were serious, these people worked vigorously in their anti-drought measures. When the drought conditions eased, however, some areas became lax in field management. To correct this situation, the provincial party committee has mobilized these people to investigate the current crop and drought conditions and to catch up with neglected field work. [Peking PEOPLE'S DAILY in Chinese 20 Aug 78 p 1]

RECLAMATION TASK PREFULFILLED--Heilungkiang has fulfilled its wasteland reclamation task for this year ahead of schedule. By 22 July, over 5.12 million mou were reclaimed, and 40 percent of the reclaimed land was planted to soybeans and other major autumn crops. [Peking PEOPLE'S DAILY in Chinese 15 Aug 78 p 1]

HEILUNGKIANG GRAIN FARM--Harbin, 10 Oct--Heilungkiang's Yui farm, China's largest mechanized grain farm, is popularizing new technology in farm machinery repairs. The farm cultivates 1.1 million mou of arable land and has 1,100 tractors and combines in addition to a large quantity of farm implements, most of which have been in use for 10 to 20 years. Recently, the State Farm Bureau sponsored a new-technology training class at this farm for technical cadres, personnel and workers from some 50 key mechanized farms in 21 provinces and municipalities. [Peking NCNA Domestic Service in Chinese 0131 GMT 7 Oct 78 OW]

HEILUNGKIANG POTATO HARVEST--Harbin, 20 Oct--A good potato harvest was reaped in Heilungkiang Province, a major potato growing area in northeast China. Total output of 4 million tons was a record for the 29 years since liberation. Some 2.8 million tons of potatoes have been transported to 18 other localities including Liaoning, Kirin, Tientsin and Shanghai. [Text] [Peking NCNA in English 0719 GMT 20 Oct 78 OW]

CSO: 4020

BRIEFS

WHEAT SOWING COMPLETION--Shangchiu Prefecture, Honan Province, has thus far completed 85 percent of the wheat sowing plan. Since September most places of this prefecture have lacked sufficient rainfall. To fight this dry spell, water conservancy works in various places have been put to full use in the wheat sowing work. [Chengchow Honan Provincial Service in Mandarin 1100 GMT 21 Oct 78 SK]

CSO: 4006

BRIEFS

EARLY-RICE PRODUCTION IN HUNAN PREFECTURE, COUNTY--Despite floods and drought, Hengyang Prefecture reaped a large bumper early-rice harvest this year. The total yields of early rice were 12.2 percent more than last year and some 30 million catties more than in 1975. The average per-mou yield reached 637 catties. In May and June the prefecture was hit by serious floods and some 900,000 mou of early-rice fields were affected. In July and August the prefecture experienced serious drought and some 2 million mou of fields were threatened by drought. The total yields of early rice in Hengyang and Hengnan counties this year reached some 130 million catties, some 50 percent of total yields of 8 counties and municipalities whose production increased. Shuangfeng County's early-rice production this year increased. The per-mou yield of the 450,000 mou of early rice in the county reached 751 catties and its total yields were 18.4 percent more than last year and 2.4 percent more than in 1974. The 51 communes and 893 brigades in the county all increased production. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 7 Oct 78 HK]

HUNAN COUNTY'S COMMUNE, BRIGADE ENTERPRISES--Changte County has vigorously developed commune and brigade enterprises and promoted diversification. By the middle of September, the value of output by various commune and brigade enterprises in the county reached 38 million yuan, up 20 percent compared with the same period last year. [Changsha Hunan Provincial Service in Mandarin 2330 GMT 6 Oct 78 HK]

HUNAN COUNTY OIL-BEARING CROPS--There are 180,000 mou of teaseed oil trees in Kuchang County, which is one of the teaseed oil bases in our province. Since last winter, the county CCP committee has led the cadres and masses to lumber 20,000 mou of teaseed oil trees, has built 15,000 mou of fertile land for growing teaseed oil trees and planted 7,000 mou of rape. They pledged to grow 10,000 mou of rape this year. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

HUNAN COUNTY TIMBER--In the past 2 years, the people in Tzuli County have provided 30,000 cubic meters of quality timber to the state. There are 1.3 million mou of forestry areas in this county. The county, communes and brigades all have their own committees for protecting the forests. The communes and brigades have appointed personnel to specially protect the forests and provided them with licenses, so that they have the authority to manage the forest areas and deal blows to those who unscrupulously lumber timber. They have also adopted the system of planting five trees after lumbering one. Now each mou of forest area has two to three times more trees than before. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

HUNAN COUNTY ENTERPRISES--Hengtung County reported that between 1974 and 1976, the average annual increase of the total value of its commune- and brigade-run enterprises was more than 3 million yuan. In 1977, the county built 20 backbone enterprises. [Changsha Hunan Provincial Service in Mandarin 2330 GMT 9 Oct 78 HK]

HUNAN RAMIE HARVEST--Peking, 18 Oct--Hunan Province had a good ramie harvest this year. By the end of August the state had purchased more than 5,000 tons, 26.9 percent more than the same period of last year. Ramie produced in this province is famed for its fine fiber, its tensile strength and for its smaller pection content. [Peking NCNA in English 0710 GMT 18 Oct 78 OW]

HYDROGRAPHIC TEAM--According to the investigation made by the hydrographic team of the provincial geological bureau on over 2,600 square kilometers of land around Shaoshan, Ningyuan and Shaoyang areas, the average annual flow of underground and ground water there amounts to over 170 million cubic meters which can irrigate over 270,000 mou of farmland. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

HUNAN COUNTY'S FORESTRY--By 15 September Lanshan County had cultivated over 92,600 mou of young forests, thus fulfilling 90 percent of its plan for cultivating young forests. Since the first national conference on learning from Tachai in agriculture, the county has cultivated over 111,000 mou of forests. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

TEASEED OIL PRODUCTION--Anhua County reaped a great bumper harvest of teaseed oil this year. The total yield of teaseed-oil fruits in the county reached 540,000 piculs, up 100 percent compared with last year. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 30 Oct 78 HK]

CHANGTE PREFECTURE AGRICULTURE--Changte Prefecture reported that the total output of its spring grain and early-maturing intermediate rice increased by 20 percent as compared with last year's same season. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 14 Oct 78 HK]

HUPEH HOLDS FARMLAND CAPITAL CONSTRUCTION CONFERENCE

Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 23 Oct 78 HK

[Summary] The Hupeh Provincial Revolutionary Committee recently held a conference on farmland capital construction to make plans for farmland capital construction tasks this winter and next spring. The conference was attended by responsible comrades of all prefectural and municipal revolutionary committees who are in charge of the agricultural front, directors of water conservancy bureaus and representatives from units concerned at the provincial level. Responsible comrades of the provincial revolutionary committees also spoke at the conference.

The delegates to the conference held that the province has scored very great achievements in farmland capital construction, initially improved the conditions for agricultural production and raised its ability to overcome natural disasters. They held: "Our province has experienced an extraordinarily serious drought, rarely seen in history. All kinds of water conservancy projects have played an important part in combating drought. A good harvest has still been won in this year of serious drought. However, this drought has exposed the weak links in our province's farmland capital construction. Our water conservancy projects cannot meet the requirements of fighting very serious natural disasters. We must be determined and energetic in doing a good job of farmland capital construction."

The conference held that, in places where water for irrigation is lacking, it is essential to build projects for storing and drawing water from other places. In the western, mountainous areas of the province, it is necessary to build water conservancy and hydroelectricity projects and emphasize small water conservancy projects. All places must vigorously build and repair embankments, ponds and small reservoirs and repair existing machinery and equipment for drawing water. The province must begin to store and control water early, so as to prepare for overcoming the floods and drought which might occur next year.

The conference emphatically pointed out that the province should vigorously embark on farmland capital construction and pay great attention to implementing party policies.

CSO: 4006

BRIEFS

HUPEH PREFECTURE SUMMER GRAIN--Chingchou Prefecture reported that it has reaped a bumper summer grain harvest on 6.844 million mou of land. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 27 Oct 78 HK]

HUPEH PREFECTURES' SOWING--By 20 October Hsiangyang Prefecture had fulfilled 60 percent of its plan for planting wheat and miscellaneous food grains. Sui County had established three high-yield experimental fields of summer grai- which cover an area of 340,000 mou. Kucheng County expects its per-mou summer grain output next year will be over 400 catties. Hsiangyang County's departments of finance, trade and materials have so far transported over 10,000 tons of chemical fertilizer, over 17,000 tons of phosphate fertilizer and over 20,000 farm machinery accessories to the county's rural area for supporting combating drought and autumn sowing. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

ENSHIH MINOR AUTUMN HARVEST--Products of minor autumn harvest purchased in Enshih Prefecture from 1 September to 10 October are worth over 3.49 million yuan. This September's gross procurement value in this prefecture increased by 55 percent as compared with the same period of last year. Products of minor autumn harvest purchased in Lichuan County in September are worth 680,000 yuan, an increase of 180 percent as compared with last September. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

SUMMER GRAIN GROWING--Chingchou Prefecture has planned that its sown acreage of summer grain will be increased from last year's 6.44 million mou to over 6.72 million mou in this year. By 20 October the prefecture had cultivated and prepared 2.13 million mou of land, planted over 440,000 mou of wheat and planted over 137,000 mou of rape. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

SUI COUNTY GRAIN PRODUCTION--Despite serious drought, the total yields of summer grain in Sui County this year was some 83 million catties more than last year. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 20 Oct 78 HK]

HUPEH COUNTY SEASAME--Chienli County reported that it has overfulfilled the yearly seasame procurement plan. By 4 October the county had stored 6,966 piculs of seasame, an increase of 1,800 piculs as compared with last year's same period. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 24 Oct 78 HK]

HUPEH COUNTY MINOR AUTUMN HARVEST--By 20 September the supply and marketing departments in Chushan County had purchased a total of 350,000 yuan of "minor autumn" products, an increase of 20.6 percent over the corresponding period of last year. There are 600 varieties of "minor autumn" products in this county. Since entering autumn, the county has organized 140 cadres and staff and workers and divided them into 32 "minor autumn" work teams to go into the communes and brigades to conduct investigation, so as to be good staff officers of the party organizations at all levels. The county's supply and marketing departments have also trained 400 purchasing personnel. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

HUPEH COUNTY RAPE--By late September the peasants in Kuangchi County have basically fulfilled sowing of 26,000 mou of rape seedlings with the exception of hybrid rape. The 83,000 mou of rape in this county produced a total of 9 million catties this year, an increase of 140 percent over last year. The county is expected to grow 120,000 mou of rape, an increase of 37,000 mou over last year with a total output increase of 40 to 60 percent. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

HUPEH COUNTY RAPE PRODUCTION--The people in Sungtzu County have implemented plans to sow 91,000 mou of rape. Growth of the 8,000 mou of rape seedlings is good. This county is one of the key rape-producing areas in the province. The average per mou yield of the 69,000 mou of rape planted this summer throughout the county is 87 catties, surpassing the highest level ever recorded. The people in this county are preparing 150 piculs of manure for each mou of rape and have adopted scientific farming of rape. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

TUNGSHAN COUNTY AUTUMN HARVEST--The amount of minor autumn harvest in Tungshan County now is some 400,000 yuan, 5.2 percent more than in the corresponding period of last year. [Wuhan Hupeh Provincial Service in Mandarin 1100 GMT 13 Oct 78 HK]

CSO: 4006

BRIEFS

LIANGCHENG COUNTY HARVEST--Liangcheng County, Inner Mongolia, has thus far reaped 1.05 million mou of late fall crop, or 93 percent of the total acreage of such crops. [Huhehot Inner Mongolia Regional Service in Mandarin 1100 GMT 7 Oct 78 SK]

CSO: 4006

BRIEFS

ICHUN PREFECTURE OIL--Ichun Prefecture reported that by mid-September the prefecture had reclaimed 646,000 mou of land for developing teaseed oil production, fulfilling 64 percent of the yearly plan, and an increase of more than 100 percent as compared with last year's same period. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 13 Oct 78 HK]

FUCHOU PREFECTURE RAPE PRODUCTION--Fuchou Prefecture reported that it has transplanted rape on 600,000 mou of land. Furthermore, 21 million piculs of fertilizer have been collected for rape production. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 13 Oct 78 HK]

KIANGSI DROUGHT--Nanchang, 3 Oct--More than 8 million cadres and commune members in rural Kiangsi are actively engaged in combating the current drought. They are building dams, digging wells and using all possible means to insure that the late rice crop is irrigated. With the exception of a few locations, most of the province has been affected by the recent high temperatures and insufficient rainfall. [Peking NCNA Domestic Service in Chinese 0114 GMT 3 Oct 78 OW]

KIANGSI PREFECTURE'S AFFORESTATION--Fuchou Prefecture has vigorously engaged in building forestry bases. In the past 3 years, the prefecture has effectively carried out afforestation over 440,000 mou, amounting to 40 percent of the total area of afforestation in the previous 26 years, and the rate of survival of saplings has risen by 160 percent. The 14 forestry bases which are now being built in the prefecture cover a total area of 1.692 million mou. There are now 1,160 state, commune and brigade forestry farms in the prefecture, and 14,000 people are specially engaged in the scientific management of those farms. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

KIANGSI TEA PRODUCTION--Tea gardens in Kiangsi Province presently cover an area of over 800,000 mou--an increase of 100 percent compared with the area before the cultural revolution. During the initial stage of liberation, tea gardens in Kiangsi only covered 70,000 mou and produced 45,000 piculs of tea annually. In 1977, tea output was 180,000 piculs. There are over 1,500 tea processing plants in Kiangsi. Average per-mou tea output in this province has increased from the previous 20 to 30 catties to the present 50 to 60 catties. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 19 Oct 78 HK]

ICHUNG PREFECTURE AGRICULTURE--Ichung Prefecture reported that it has done well in minor autumn harvest. By 20 October, the total value of products procured in minor autumn harvest reached 1.6 million yuan, fulfilling 10 percent of the yearly plan. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 30 Oct 78 HK]

KIANGSI RICE PRODUCTION--Chiuchiang Prefecture has reaped bumper harvest of 500,000 mou of hybrid late rice. According to reports from various places, the yields of 1 mou of hybrid late rice is generally equal to the yields of 1.5 mou of conventional late rice; the yields of 1 mou of good hybrid late rice is equal to the yields of more than 2 mou of conventional late rice. Even if 1 mou of hybrid late rice grows badly, its per-mou yield is 100 catties more than the per-mou yield of the conventional rice strains. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

MINOR AUTUMN HARVEST--According to incomplete statistics, by the middle of October Shangjao Prefecture had procured 2.09 million yuan of minor autumn harvest products. The prefecture is abundant in wild products. The prefecture produces dozens of medicinal herbs. [Nanchang Kiangsi Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

CSO: 4006

BRIEFS

KIRIN FUNGUS, ANTLERS--Peking, 18 Oct--Kirin Province has sold to the state so far this year 150 tons of fungus. This is 8 percent up on the figure for the same period of last year. Tunghua Prefecture, the province's leading deer-raising center, has sold to the state a record 2,970 kilograms of antlers. [Peking NCNA in English 0710 GMT 18 Oct 78 OW]

KIRIN AFFORESTATION--Changling County, Kirin Province, has made great efforts in afforestation. Over the past 20 years, the county has built more than 630,000 mou of forests for the purpose of fixing sandy soil. The total timber reserve now amounts to some 1.8 million cubic meters, equivalent to 11 times the reserve prior to liberation. [Changchun Kirin Provincial Service in Mandarin 1100 GMT 6 Oct 78 SK]

KIRIN FARMLAND CAPITAL CONSTRUCTION--Huaite County, Kirin Province, has launched a vigorous campaign for farmland capital construction. Work has started on over 100 projects in the county with a total of more than 65,000 people working daily. Now they have completed 1.08 million cubic meters of earth and stone work and built 40 reservoirs, dams and ponds. Over 3,000 drainage ditches have been dug or dredged. [Changchun Kirin Provincial Service in Mandarin 2200 GMT 18 Oct 78 SK]

MACHINES, RICE IMPROVEMENTS--The Kirin Provincial Institute of Agricultural Machines, the Kirin Provincial Institute of Agricultural Sciences and Lishu State Farm in Kirin succeeded in making direct seeding machines which performed well and saved time and labor when used in large rice fields. This type of machines can be produced at low costs. In addition, Kirin has initially bred a hybrid strain of rice which is suited to local conditions and, when popularized, will raise the rice output of Kirin Province by a large margin. [Changchun Kirin Provincial Service in Mandarin 1100 GMT 1 Oct 78 SK]

CSO: 4006

BRIEFS

KWANGSI AGRICULTURAL, SIDELINE PROCUREMENT--Commerce departments throughout the region have seriously implemented the spirit of the national finance and trade conference, rectified their organization and sent cadres to the rural areas to help communes and production brigades develop proper sideline production. As a result, they have done well in procuring agricultural and sideline products this year. By late September the total value of agricultural and sideline products procured in the region increased by 5.8 percent as compared with last year's same period. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 28 Oct 78 HK]

FARMLAND CAPITAL CONSTRUCTION--Recently the Kwangsi Regional CCP and Revolutionary Committees organized eight inspection groups on farmland capital construction to conduct a full-scale inspection to prepare for this winter's farmland capital construction throughout the region. Chin Ying-chi, secretary of the regional CCP committee, personally led a group to inspect work in Nanning Prefecture. Inspection groups went to various areas from 27 to 28 October. They checked on various preparations including those for autumn harvesting and winter sowing. On 25 October the regional CCP committee held a meeting of the inspection groups in order to make plans for going down to the countryside. The conference conveyed the recent instruction of Chiao Hsiao-kuang, first secretary of the regional CCP committee, on farmland capital construction. Chin Ying-chi then gave instructions to those who were going to the countryside and pointed out that the funds, grain, material and equipment invested in this year's farmland capital construction were greater than previous years. Therefore, the task must be fulfilled without fail. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 30 Oct 78 HK]

WUCHOU PREFECTURE AFFORESTATION--Wuchou Prefecture is rich in forestry resources and is one of the key resin-producing areas in China. In 1957 the prefecture produced 11,400 tons of resin. In 1977 the total output of resin throughout the prefecture was 49,400 tons, an increase of 300 percent over 1957. By early September this year, a total of 33,700 tons of resin had been produced, an increase of 20 percent over the corresponding

period of last year. There are now 15 state farms throughout the prefecture forming a resin-producing base. At present there are 22 million mou of afforested areas in the whole prefecture, covering 82 percent of the prefecture and 50 percent of them are resin-producing trees. In 1977 the prefecture earned 15 million yuan of income from resin, showing a profit of 7 million yuan. [Nanning Kwangsi Regional Service in Mandarin 1100 GMT 19 Oct 78 HK]

KUEIPING COUNTY GREEN MANURE--Kueiping County reported that it has now transplanted green manure on 261,000 mou of land. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 18 Oct 78 HK]

TAHSIN COUNTY RICE--Tahsin County reported that it has transplanted late rice on 160,000 mou of land. Presently, 40,000 of them have been reapplied fertilizer. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 18 Oct 78 HK]

PINGNAN COUNTY OIL PROCUREMENT--Pingnan County reported that by 10 October, the county had procured 536,000 catties of oil-bearing crops, overfulfilling the yearly plan by 6,000 catties. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 18 Oct 78 HK]

KWANGSI COUNTY PIGS--By early October both the collectives and the commune members in Chuanchou County had planted 17,900 mou of forage feed, an increase of 21 percent over the corresponding period of last year. By the end of September the peasants in this county had raised 354,000 head of pigs, an increase of 13 percent over the corresponding period of last year, reaching the highest level ever recorded. [Nanning Kwangsi Regional Service in Mandarin 1100 GMT 19 Oct 78 HK]

TUAN YAO COUNTY PIG-RAISING--Tuan Yao Autonomous County reported that in the first half of this year, the county has raised 541,200 head of pigs, an increase of 29,100 head as compared with last year's same period. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 14 Oct 78 HK]

KWANGSI PREFECTURE WINTER SOWING--By 30 September the peasants in Kueilin Prefecture had planted 311,500 mou of various winter crops, an increase in area of 50.4 percent over the corresponding period of last year. In the recent few years, the areas sown to winter crops and per-mou yield have been on the rise in this prefecture. However, the areas and total output are still lower than the highest level recorded. The prefectural CCP committee held that it is necessary to make a success of winter sowing before a good foundation can be laid for reaping a bumper harvest of early rice next year. In Hsingan County, 105,200 mou of winter crops have now been sown, accounting for 70 percent of the planned areas to be sown. [Nanning Kwangsi Regional Service in Mandarin 1100 GMT 9 Oct 78 HK]

KWANGSI COUNTY MANURE--Tuan Yao Autonomous County reported that by 14 October the county had collected 9.82 million piculs of manure. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 25 Oct 78 HK]

PAI-SE PREFECTURE TEASEED--Pai-se Prefecture reported that by mid-October the prefecture had tended 172,700 mou of teaseed oil trees. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 25 Oct 78 HK]

CHUNGTSO COUNTY MANURE--Chungtso County reported that by 22 October the county had collected 8.45 million piculs of manure. [Nanning Kwangsi Chuang Regional Service in Mandarin 1100 GMT 27 Oct 78 HK]

CSO: 4006

KWANGTUNG FIGHTING SHORTAGES IN AGRICULTURAL EQUIPMENT

Canton Kwangtung Provincial Service in Mandarin 0430 GMT 14 Oct 78 HK

[Summary] A letter from staff members and workers at the Kwangtung provincial agricultural production materials company points out: "The serious shortage of the apparatus needed for applying agricultural chemicals in our province cannot be allowed to continue." The letter says: "Before our country realizes the four modernizations, the manually-operated apparatus needed for applying agricultural chemicals is still important for preventing and controlling insect pests. It is urgently necessary for paddy rice, vegetable and industrial crops. However, since 1975, our province has not fulfilled its annual quotas for producing this piece of equipment needed for applying agricultural chemicals and has had supply shortages. The province has planned for an average production of 150,000 sets of this equipment every year, but it produced only 65,000 sets in 1976 and 74,600 in 1977. Our province has approximately 300,000 production teams but, on the average, each production team gets only one piece of this equipment every 2 years. (Tungchi) No 3 production team, (Yunlu) brigade, Taliang commune in Shunte County, has 170 mou of paddy rice and also cultivates sugarcane and vegetables. But it has only one sprayer and, since 1976, has been unable to get another one despite all efforts."

The letter says: "Since supplies of this apparatus needed for applying agricultural chemicals have fallen short, mobilization of communes and brigades to carry out repairs is a good method. However, production of main parts cannot meet demand. Over the past 3 years, the province has planned for an annual production of 4 million parts for this apparatus but has been able to fulfill only 40 to 50 percent of its yearly quotas. For example, 1 million main parts are needed each year but only 120,000 parts can actually be delivered." The letter says that, thus, repairs cannot be carried out. The reason for the low production of this apparatus and its parts is not because the capacity of the factories is insufficient or workers do not want to support agriculture but because there are no material supplies. To produce 140,000 sprayers, 307 tons of thin 0.75 centimeter steel plates, 77 tons of thin 1.2 centimeter steel plates and 131 tons of thin 1.5 centimeter steel plates are needed. Altogether, 515 tons of thin steel plates are needed. Although our province has

shortages of thin steel plates, as long as departments concerned attach importance to the problem, it can be solved. If they attach importance to the problem of parts shortages, this problem can also be solved."

The letter says: "We hope that provincial departments concerned can firmly grasp the solution of these specific problems in agricultural production and do not turn deaf ears to them or delay their solutions for a long time."

CSO: 4006

GOOD PADDY RICE STRAINS TRIAL PLANTED

Hong Kong TA KUNG PAO in Chinese 7 Aug 78 p 3]

[Article: "Strive to Achieve an Even Better Harvest in Late Crop; Shao-Kuan Widely Plants Hybrid Rice; Mei County Popularizes Two New Strains; New Strain, "Kuang-Ch'ing," Can Yield up to 800 to 1300 Chin of Rice per Mou"]

[Text] (Special dispatch from Kwangchow) This year, Shao-kuan prefecture is popularizing hybrid rice in the late crop over a large area. It plans to grow it on 900,000 mou of land, accounting for 30 percent of the total cultivated area of the late crop. Up to August 31, hybrid rice was planted over some 65,000 mou, which amounts to 80 percent of the planned hybrid rice growing area.

Another report: For the rapid development of agricultural production, the Mei County prefectural party committee has decided that the whole prefecture will trial plant 150,000 mou of the good rice strains of Kuang-ch'ing and Kuei-chao in this year's late crop.

These two good strains of paddy rice, Kuang-ch'ing and Kuei-chao, were both raised by the Kwangtung Provincial Agricultural Science Institute. Kuang-ch'ing has been trial planted in five crops in Feng-shun County, in the prefecture. It has been proven: 1. It can be planted as both an early and a late crop. The early crop has a late-intermediate maturing while the late crop has an early maturing; it has the advantage of avoiding frost and wind and can facilitate the advance planting of winter crops. 2. Appropriate tillering, more effective ears, and high yielding rate. 3. Wide adaptibility. 4. The tillers are small and pointed while the stems are thick and sturdy; the wind can easily pass through and more light can be let in. It can resist insect damage and has good resistance to wind. 5. It has the advantage of thin husk, fullness of grain, high milling percentage and fine rice quality, etc. After planting over a large area, the per mou yield of this variety is more than 800 chin in general, with the highest reaching 1,300 chin.

The trial planting of Kwei-ch'ao was also carried out in Mei County prefecture over a smaller area; the experiment also shows that it basically has the same fine qualities of the Kuang-ch'ing variety.

At present, transportation and food departments at Mei County all give priority to arranging vehicles for prompt transportation of the seeds of these fine strains down to the various communes and brigades. The department of agricultural technology has also sent technical personnel down to the communes and brigades to help improve the quality of seedlings.

9138
CSO: 4006

BRIEFS

KWANGTUNG PREFECTURE 'COLD DEW'--The party organizations at all levels in Shaokuan Prefecture have further mobilized the masses to do a good job of preventing and resisting "cold dew" [8 October] wind so as to insure a bumper harvest of late rice. Spring comes late and autumn cold spell comes early in this prefecture, which is located in the Nanning mountainous area. As a result, its late rice is often threatened by "cold dew" wind. Since late rice production began this year, the prefectural CCP committee had paid attention to early sowing and transplanting so as to begin the season earlier. At the same time, they have adjusted the varieties of the rice. This year the people in this prefecture have planted 900,000 mou of hybrid late rice and 700,000 mou of single-autumn-cropping rice, which accounts for 50 percent of the total areas sown to late rice. [Canton Kwangtung Provincial Service in Mandarin 0430 GMT 8 Oct 78 HK]

HAINAN COUNTY FLOODS--The leadership organs at all levels in Paoting County adopted emergency measures to reduce the losses caused by typhoons and rainstorms to the minimum and tried by every way possible to reap a bumper harvest. The county experienced two typhoons and rainstorms which have affected agricultural production. The county and communes have organized 148 leadership cadres and technicians to inspect all the mountain streams and reservoirs and organize 1,972 militiamen to crash repair 24 projects which were in danger. When the typhoons were over, the county and communes again organized 214 cadres to go to the front line of disaster-fighting. By 2 October they had crash reaped 4,400 mou of mid-season and early rice. [Haikow Hainan Island Service in Mandarin 0430 GMT 9 Oct 78 HK]

HAINAN COUNTY FIGHTS FLOODS--Within 1 month, the people in Chiunghai County experienced two typhoons and large areas of late rice which have already been planted suffered losses. The 6,600 mou of late autumn sweet potatoes were heavily damaged. Quite a number of water conservancy projects were also damaged. The county CCP committee then led 185 cadres and those with experience in rural work to strengthen leadership in the front line of flood-fighting. They also summed up their experiences in

resisting the 13th typhoon in 1973, strived to increase the per mou yield of late rice, planted a large quantity of sweet potatoes and other dry land crops to make up the losses of the main crops with dry land crops, launched diversified economy to increase income of cash and did a good job of harnessing rivers. Now they have dug channels on 138,000 mou and crash reaped 4,500 mou of rice. [Haikow Hainan Island Service in Mandarin 0430 GMT 9 Oct 78 HK]

HAINAN FARMS RECLAIM LAND FOR RUBBER TREES--By 20 September state farms in Hainan Administration Region had overfulfilled the region's quota for reclaiming 100,000 mou of land for planting rubber trees for this year. They have seriously summed up experience, changed their old routine and planted rubber trees in spring instead of autumn so as to allow saplings to grow longer and healthier. Nearly half of the state farms in the region have planted rubber saplings in spring this year. [Haikow Hainan Island Regional Service in Mandarin 0430 GMT 11 Oct 78 HK]

HAINAN SWEET POTATO SOWING--The Hainan Regional CCP Committee held a telephone conference on 13 October which called on party organizations at all levels to fulfill the plan for autumn sweet potato sowing before 7 November and make up for typhoon losses. Since the recent typhoon, over 49,000 people in Wanning County have sown on a crash basis over 30,000 mou of autumn sweet potatoes, 50,000 people in Chiungshan County have sown over 28,000 mou, and Lotung County has sown over 11,800 mou. This region has been particularly slow in sowing late autumn sweet potatoes. At present, this region has only sown over 30,000 mou of late autumn sweet potatoes, only 11 percent of the amount sown in the same period last year. The conference called on party members and people to complete the sowing of 2.2 million mou of autumn sweet potatoes and, before 7 November, to sow 50,000 mou of potatoes daily. [Haikow Hainan Island Service in Mandarin 0430 GMT 15 Oct 78 HK]

WATER CONSERVANCY CONFERENCE--A Kwangtung provincial water conservancy conference was recently held in Canton to discuss measures to speed up water conservancy and farmland construction in the province. The conferees recognized the fact that the construction of water conservancy projects in Kwangtung in the past decade was slow and that many areas had been unable to rid themselves of the passive situation in farm production. Greater efforts and more effective measures were urged to fulfill the provincial party committee's plan for building 40 million mou of stable, high-yield farmland and for expanding the irrigated area to 46 million mou before 1985. [Hong Kong WEN HUI PAO in Chinese 10 Oct 78 p 1]

YUNFU COUNTY WINTER SOWING--Yunfu County has made active preparations for this year's winter sowing. The county has reaped bumper winter-sown wheat harvests in the past few years. This year, after discussions by the masses, the county has decided to sow 110,000 mou of winter wheat, 15,000 mou of winter tobacco, 60,000 mou of green manure, 12,000 mou of vegetables and 20,000 mou of pulses and other dry-land crops. [Canton Kwangtung Provincial Service in Mandarin 0430 GMT 18 Oct 78 HK]

HAINAN FARMLAND CAPITAL CONSTRUCTION--The Yai County CCP Committee has vigorously embarked on farmland capital construction with water conservancy projects as the central work. Since 1975, the state and county have spent 3,899,000 yuan on farmland and water conservancy capital construction. Of it, 1,094,000 yuan was appropriated from the county--80 percent of the county's financial revenue. Over the past 4 years, the county has built 65 small water conservancy projects, increased the capacity of reservoirs by 32.87 million cubic meters which is capable of irrigating some 36,000 mou, more than half of the areas irrigated by the water conservancy projects built since liberation. With the development of water conservancy projects, the county's total yield of grain last year was 21.35 million catties more than in 1974, an 18.8 percent increase. [Haikow Hainan Island Regional Service in Mandarin 0430 GMT 27 Oct 78 HK]

HAINAN RESERVOIR USE--The water conservancy management units in the Han area of Hainan have made full use of reservoir facilities to breed fish and generate hydroelectricity with outstanding achievements. At present, two-thirds of large and medium-size water conservancy projects are self-sufficient in expenditure on management, providing [a] portion of the funds for rounding off, repairing and expanding existing water conservancy projects. The Han area has now bred fish in 335,000 mou of reservoirs. Some 10 key reservoirs have cultivated fry. From January to July this year (Sungtao) Reservoir had a catch of some 630,000 catties of fish, more than the total catch last year. Over the past several years, the management units have built 40 hydroelectricity stations with the total installed capacity of some 15,300 kilowatts. The Hainan Hydroelectricity Bureau and (Sungtao) Project Management Bureau have built small hydroelectricity stations in the (Sungtao) Irrigated Area with the installed capacity of 10,270 kilowatts. From January to September this year, these hydroelectricity stations supplied 21.8 million units of hydroelectricity. With the development of six hydroelectricity stations and the multi-purpose use of the reservoirs, the water conservancy department in Chiunghai County has an income of some 400,000 yuan annually. The county has become the first county which is self-sufficient in management funds in the Han area in Hainan. In addition, the county has provided nearly 1 million yuan for

maintenance and repairs of projects over the past several years. According to incomplete statistics, all key reservoirs throughout the Han area in Hainan have afforested some 5,000 mou and planted nearly 20,000 fruit trees of various kinds. All key water conservancy projects in Tan County have bred some 200 head of cattle and some 60 sheep. [Haikow Hainan Island Regional Service in Mandarin 0430 GMT 27 Oct 78 HK]

SHAOKUAN PREFECTURE AFFORESTATION--Shaokuan Prefecture reported that by 15 October, the prefecture had mobilized 300,000 people to tend 1.5 million mou of young trees. They had also expanded 150,000 mou of land in mountainous areas and improved 100,000 mou of land for afforestation in 1979. [Canton Kwangtung Provincial Service in Mandarin 0430 GMT 25 Oct 78 HK]

CSO: 4006

BRIEFS

KWEICHOW PREFECTURE AGRICULTURAL REWARDS--On the morning of 3 October, the Tsuni Prefectural CCP Committee held a rally to reward the progressive units which reaped bumper harvests of summer grain and edible oil. The rally presented red flowers to 24 representatives who were typical examples in the high-yield of wheat or rape. Each of the 22 progressive units was given one hand-guided tractor or diesel engine. Some 229 progressive collectives were presented with banners or certificates of commendation. Each of the 43 progressive collectives was given one diesel engine, or gasoline pump, milling machine or power sprayers. This year the cadres and commune members of this prefecture have overcome serious drought with unprecedented drive and reaped an unprecedented bumper harvest of summer grain and edible oil. The total output of summer grain this year increased by 48.4 percent over last year. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

KWEICHOW PREFECTURE AGRICULTURE--Tungjen Prefecture experienced prolonged and serious drought this year. Therefore this year's planting of wheat and rape is of important significance for making up losses of this year's autumn grain and for reaping bumper harvest of summer grain next year. Tungjen County's fourth level secretaries have built 176 wheat-producing embankments with an area of 13,000 mou and 176 rape-producing embankments with an area of 12,000 mou. These embankments are formed into three production lines spreading all over the county. After overcoming serious drought, Chiangkou County relentlessly grasped model farmland. Techiang County CCP Committee's four Standing Committee members led 48 cadres and farming technicians to set up high-yielding farmland in six communes. According to statistics on 27 September, the prefecture had plowed 244,000 mou of farmland, dug channels, drained 670,000 mou and sown 11,000 mou of rape and wheat. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

KWEICHOW AUTONOMOUS COUNTY'S PIG PROCUREMENT--By 20 September, Chenfeng Puyi-Miao Autonomous County had fulfilled the annual pig procurement plan 100 days ahead of schedule. The number of pigs raised in the county this year increased by 3.8 percent compared with the same period

last year. By the middle of September, the county had procured 4,000 pigs, fulfilling the annual pig procurement plan 100 days ahead of schedule. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 5 Oct 78 HK]

KWEICHOW COUNTY'S WATER CONSERVANCY CAPITAL CONSTRUCTION--Chiangkou County has triumphed over a serious drought and reaped a great bumper harvest this year. Last year, the county reaped a total grain yield of 116 million catties. By now, the county has built 294 large and small water-drawing projects and 163 water-pumping projects. The water conservancy projects in the county can effectively irrigate 85,600 mou of fields, which amount to 80 percent of the total area of fields. Last winter and this spring, the county carried out farmland capital construction in 173 areas, with a total of 452 projects launched. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 6 Oct 78 HK]

KWEICHOW COUNTY 'MINOR AUTUMN HARVEST'--There are 150,000 mou of teaseed oil in Yuping County with another 100 varieties of "minor autumn" products. The whole county is expected to produce 2 million catties of teaseed oil this year and 500,000 catties of tung tree seeds, providing an average of 6 yuan to each person engaged in farming together with income from other products. Each person can earn a total of 10 yuan. The industrial departments must process the "minor autumn" products in good time and make use of them, while the communications departments must make arrangements for vehicles to transport them promptly. By now a total of 330,000 yuan of such products have been procured, giving an average of 4 yuan to each person engaged in farming. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 8 Oct 78 HK]

TSUNI COUNTY HYBRID RICE--Tsuni County reported that it has reaped a bumper hybrid rice harvest on 36,000 mou of land. The average yield per mou is 963 catties. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 26 Oct 78 HK]

KWEICHOW COUNTY'S SCIENTIFIC FARMING--Puting County has vigorously engaged in scientific farming and triumphed over drought, floods and hailstorms. On the basis of a great bumper grain harvest last year, it has again reaped a great bumper harvest this year. The total grain yield in the county increased by 11 percent compared with last year, and the yield of tobacco, groundnut, cotton, tea and other economic crops also increased by 40 to 90 percent compared with last year. This year, the county popularized fine rice seed strains over 60 percent of the rice fields and also trial-cultivated hybrid maize. Generally more manure was spread this year, with an average of over 3,000 catties of base manure per mou. Some brigades even spread as high as 5,000 catties per mou. More chemical fertilizers were also used. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 22 Oct 78 HK]

ANSHUN COUNTY AUTUMN TRANSPLANTING--Anshun County reported that by 16 October the county had improved 121,000 mou of land, and transplanted 90,000 mou of wheat and rape and 20,000 mou of green manure. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 25 Oct 78 HK]

ANSHUN PREFECTURE AGRICULTURE --Anshun Prefecture reported that by 11 October the prefecture had transplanted wheat and rape on 195,000 mou of land. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 16 Oct 78 HK]

KWEICHOW PREFECTURE AGRICULTURE--Southeast Kweichow Autonomous Prefecture reported that it has decided to transplant summer grain on 1.35 million mou of land this year, an increase of 20 percent as compared with last year. The prefecture has now cultivated 30,000 mou of high-yield sample wheat land. [Kweiyang Kweichow Provincial Service in Mandarin 1100 GMT 16 Oct 78 HK]

CSO: 4006

BRIEFS

GRAIN PROFITS--Grain departments in Liaoning Province have made great efforts to change from deficits to profits. During January-September, the total profit made by grain and oilseed processing and related industries and by transportation units handling grain and oil increased nearly two times compared with the same period of last year. [Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 18 Oct 78 SK]

DROUGHT-FIGHTING CAMPAIGN--A campaign to sink wells for combating drought has begun in Shenyang Municipality, Liaoning Province. The municipality has formed more than 80 well-sinking teams composed of over 670 people. One hundred and thirty sets of well-sinking equipment have been put to use. By 18 October, they had completed 102 pump wells, and construction of an additional 68 wells was under way. According to the plan set up by the municipality, a total of 4,040 wells will be sunk to provide water for paddy fields, and 1,000 wells for vegetable fields. [Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 25 Oct 78 SK]

CHAO-WU-TA LEAGUE LIVESTOCK PRODUCTION--Chao-wu-ta League in Liaoning Province scored achievements in increasing livestock production this year. Pastureland construction projects completed in recent years include 937 pump wells, 11 relatively large canals and 15 water ponds. Pa-lin-yu banner of this league built a reservoir, the first of its kind on the league's pastureland. A key water conservancy project in Weng-niu-te banner was completed and put into operation last summer. Progress has been made in protecting the livestock against diseases. Now the number of veterinarians in the league is eight times more than that in the early post-liberation period. For 15 years, no animal epidemic affecting large areas has occurred. All this has attributed to this year's increased production of livestock. [Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 8 Oct 78 SK]

LIAONING DIVERSIFIED ECONOMY--Liaoning Province has gone all out to develop a diversified economy. Now the province has 45 county-level and a number of commune- and brigade-level sideline production bases. The sideline undertakings include fruit orchards, rabbit raising and beekeeping. With regard to minor autumn crops, by the end of September the value of products procured had shown a 14-percent increase over the same period of last year. [Shenyang Liaoning Provincial Service in Mandarin 2300 GMT 12 Oct 78 SK]

CSO: 4006

NEW DIFFUSION METHOD OF IRRIGATION USED

Peking KWANGMING DAILY in Chinese 5 Aug 78 p 2

[Article: "The Successful Experimentation by the Red Guard Brigade of Wang-Jung County in Shansi Province of the New Diffusion Method of Irrigation Which Conserves Water and Increases Production"]

[Text] The Red Guard brigade of Wang-hsien commune in Wan-jung County, Shansi Province, with the assistance of the Shansi Provincial Water Conservation Research Institute and the Water Conservation Bureaus of Yun-ch'eng Prefecture and Wan-jung County, has carried out experimentation on and research into irrigation by diffusion and achieved good results after 2 years of experimentation. Irrigation by diffusion of one mou of wheat or cotton for one year requires only 75 to 100 cubic meters of water. By comparison, it saves one half of the water used by spray irrigation and two-thirds of the water used by ditch irrigation. Moreover, irrigation by diffusion requires little investment and is easily managed; it can increase cultivated land by 5 percent and can also increase production. This irrigation method has great potential for development in our country's drought-stricken areas in the north, the northwest, etc. It will play a great role in realizing the modernization of agriculture in these areas, and is worthwhile to promote.

Irrigation by diffusion is simply diffusion of water through porcelain tubes which are buried underground. The water for irrigation seeps out through tiny holes in the porcelain tubes and, through the capillary action of the soil, spreads around the tubes to be absorbed by the crops. The porcelain tubes of the Red Guard brigade are made by baking local yellow soil plus a small amount of clay. Their technique of baking is the same as that used in baking bricks. Each piece of tube is 80 centimeters long. Three to five tubes are connected to form one set with one intake opening. The set is to be connected to either an open ditch or a closed tube and placed 3 meters away from another set. Each mou of land requires only 222 meters of tubes which represent 30 to 40 dollars of investment. The requirements for the deep burying of these porcelain tubes are: first, it must be possible to use Tung-fang-hung tractors for deep

ploughing without destroying the tubes; second, the pipes should not be susceptible to damage by freezing; third, the pipes should be laid within the soil's capillary action area. The Red Guard brigade buried the porcelain tubes with their tops 40 centimeters below the ground. For an even diffusion of water, the tubes need to be buried in level ground, basically without slope. Three tubes of water are needed for each irrigation period, that is, approximately 15 cubic meters of water for each mou of land. Generally, the water will all diffuse in 5 to 10 hours. During the entire growth period of wheat or cotton, it is necessary to irrigate 3 to 7 times. The total amount of water needed for the irrigation of each mou is 50 to 70 cubic meters during a year of abundant rainfall, and 80 to 100 cubic meters during a drought-stricken year.

This irrigation by diffusion technique can improve the soil's physical and chemical conditions and help enhance its biological action. For instance, after irrigation [by diffusion] in early spring, the ground temperature and the surface temperature are both higher than those [after] spray irrigation or ditch irrigation; no hard slab will form on the surface, and the soil structure will not be destroyed. Compared with other irrigation methods, irrigation by diffusion provides the soil with an appropriate amount of moisture; the bacteria can multiply more quickly; transformation of active, organic matter can be greatly increased, and thus enhance the fertility of soil, which will help boost the yield. Based on the preliminary experiments by the Red Guard brigade, cotton production increased by 12 to 19 percent, and wheat production by 3 or 4 percent.

Aided by other measures for increasing production, it is certain that production can be aggrandized by a large margin.

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CSO: 4006

SHANSI COMMUNE DRIVES 15-KILOMETER-LONG IRRIGATION TUNNEL

Peking NCNA in English 0712 GMT 20 Oct 78 OW

[Text] Taiyuan, 20 Oct (HSINHUA)--Teams of commune [word indistinct] have driven a 15-kilometre irrigation tunnel through the rugged hills of Hsiyang County, home of the pace-setting Tachai production brigade in Shansi Province, North China.

One of China's longest tunnels, it was completed in 2 1/2 years, 6 months ahead of schedule. This is part of a scheme to water 20,000 hectares of farmland, or three-fourths of the fields in this dry, highland county.

The whole irrigation project will divert water from the Hsiaoho River in the Yellow River basin eastward across the county to the Sunghsi River, which is part of north China's Haiho River system.

Main construction items include a reservoir on the Hsiaoho River, two tunnels (the one just completed being the longer), and two trunk irrigation canals. They will join existing aqueducts, reservoirs and other projects to form a comprehensive system, benefiting 16 communes and over 300 production brigades.

The 15-kilometre tunnel just completed is the most difficult part of the project. It is lined with stone cemented with concrete and allows the passage of 8 to 10 cubic metres of water per second.

Hsiyang County had a negligible 500 hectares of irrigated land a dozen years ago. Through hard work, the county's peasants have extended this to 5,800 hectares, which is one of the major factors behind this advanced county's rapid increase in grain output.

The county revolutionary committee has organized commune construction teams to put the project through, in a new move to expand Hsyiang's agriculture.

CSO: 4020

BRIEFS

SHANTUNG WHEAT FIELDS--Huimin Prefecture of Shantung Province is checking the wheat fields and planting additional seedlings to replace those which have not grown well due to lack of sufficient rainfall. By 11 October, over 450,000 mou of wheat fields had been irrigated. [Tsinan Shantung Provincial Service in Mandarin 2315 GMT 11 Oct 78 SK]

SHANTUNG FARMLAND IMPROVEMENT CAMPAIGN--Since the first national conference on learning from Tachai in agriculture, over 150,000 militiamen have taken part in the farmland capital construction each winter-spring period at the 1,000-square-kilometer worksite of the construction campaign to the west of Tsou County in Shantung Province. Through 3 years of joint efforts made by these militiamen and the local masses, 66,000 mou of terraced fields have been built, and conditions on 480,000 [mou of] lowland have been improved. The irrigated acreage has been expanded by 437,000 mou and the fields with guaranteed high yield free from the threats of drought and waterlogging have been increased by 510,000 mou. Grain output in this area has shown an average annual increase of 12.4 percent. [Tsinan Shantung Provincial Service in Mandarin 2300 GMT 25 Oct 78 SK]

SHANTUNG CADRES LABOR--Linchin County, Shantung Province, organized over 1,000 county- and commune-level cadres to take part in farm labor. The county plans to sow 350,000 mou of wheat. [Tsinan Shantung Provincial Service in Mandarin 2300 GMT 9 Oct 78 SK]

CSO: 4006

BRIEFS

SZECHWAN DROUGHT CONTINUES--Drought continues in more than 50 counties in Szechwan since mid-July, affecting over 15 million mou of crops. Thus drought combating has become a major task in current field management of autumn ripening crops to insure a good harvest. [Peking PEOPLE'S DAILY in Chinese 20 Aug 78 p 1]

CSO: 4006

TIBET FORMULATES ECONOMIC POLICY FOR PASTORAL COMMUNES

Peking NCNA Domestic Service in Chinese 0121 GMT 7 Oct 78 OW

[Excerpts] The Tibet Autonomous Regional CCP Committee recently formulated a 10-article economic policy for the people's communes in pastoral areas to arouse the socialist enthusiasm of herdsmen and promote high, stable and fine-quality output in the development of Tibet's livestock breeding.

Tibet is one of our country's five major pastoral areas and livestock breeding occupies an important position in Tibet's national economy. Since the democratic reforms, especially since establishment of the people's communes, Tibet's livestock breeding has been restored and developed. As of the end of last year, the region's total animal population reached over 20 million.

In August this year, on the basis of investigation and study, the Tibet Autonomous Regional Party Committee convened, one after the other, a regional party committee's standing committee meeting and the fourth regional pastoral area work meeting attended by leading cadres of the prefectures, municipalities, counties and districts. At these meetings the settlement of two questions--hard work and policy and hard work and work style--were emphasized and a 10-article policy for the people's communes in the pastoral areas was formulated.

This document clearly stipulates: The people's communes and production teams in the pastoral areas must, in accordance with production needs and the different situations of individuals, democratically determine the number of basic workdays each person should fulfill each year. In determining the number of basic workdays, special attention must be paid to women's physiological characteristics. Women commune members should be given 1 month of leave for childbirth, and their necessary material needs should be taken care of at the same time this stipulation was made in consideration of the plentiful female labor force in Tibet and the past practice of having Tibetan women work soon after childbirth. For those who overfulfill their basic workdays, commendations or awards should be given. Production teams should establish (?animal herd work groups) [hsu chun tso yeh tsu 3964 5028 0155 2814 4809] and implement for these

groups the "two fixed, one award" system--fixed production, fixed work, and award for overfulfillment of production--and resolutely rectify mistaken methods such as rigidly accounting and evaluating work assignments and work points according to the number of persons available, their sex, age, family and class origins, demonstration of political awareness or degree of influence. On the question of distribution, it is necessary to stress correct implementation of the "three considerations" principle in light of the tendency of some communes and production teams in the past few years to be partial to making contributions to the state and public accumulations of the collective while neglecting to increase commune members' incomes. At the same time, it is necessary to implement a lenient taxation policy to allow more than 90 percent of the commune members to increase their incomes. When purchasing cowhide and sheepskin, it is necessary to consider the people's need to wear leather clothing and live in tents and prohibit excessive purchasing quotas assigned by various levels. It is necessary to encourage the herdsmen and commune members to engage in appropriate family sideline occupations such as weaving, collecting and hunting, and allow raising and breeding of certain numbers of private animals.

The document includes some clear separate stipulations on the questions of cadres' work style, cadres' participation in labor, reduction of nonproductive personnel, financial management and policy regarding mutual benefits in the construction of grassland.

CSO: 4006

BRIEFS

LIVESTOCK REGION ESTABLISHED--A new livestock region is being established in northern Tibet on the Shuang-hu grassland, which is located west of Tang-ku-la Mountain. Just 2 years ago this region was a deserted area. Now it has 11 communes with 36 production teams, over 5,000 residents and 520,000 head of livestock of various types. With 120,000 square kilometers of land, this grassland is as big as Fukien Province. Situated some 5,000 meters above sea level, it has a cold, windy and snowy climate. However, over 50 percent of its land can be used to raise cattle, including oxen and sheep. Some warmer areas in the region may be planted to naked barley and Chinese cabbage. [Peking PEOPLE'S DAILY in Chinese 15 Aug 78 p 1]

CSO: 4006

BRIEFS

YUNNAN PREFECTURE DISTRIBUTION--The leadership members of the party organizations at all levels in Chuhsiung Yi Autonomous Prefecture grasped well planned distribution of spring-sown crops. By now 1.1 million mou of various crops have been harvested throughout the prefecture, an increase of 120,000 mou over the corresponding period of last year and with better quality. The prefecture reaped a bumper harvest this year and overfulfilled the plans for each person to produce an average of about 100 catties of radish. At the same time the prefectural CCP committee's five responsible comrades have gone deep into Chuhsiung, Nanhua, Tayao, Yaoan and Mouting counties to investigate and study the distribution situation. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 9 Oct 78 HK]

YUNNAN PREFECTURE'S 'MINOR AUTUMN HARVEST'--Ssumao Prefecture has vigorously promoted its "minor autumn harvest." By the end of August, the total value of "minor autumn harvest" products procured in the prefecture had reached 6.59 million yuan, up 32 percent compared with the same period last year. Mochiang County has also studied and made arrangements for its "minor autumn harvest." By August, the total value of "minor autumn harvest" products procured in the county had reached 1.55 million yuan. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 4 Oct 78 HK]

YUNNAN COUNTY RICE--Output of the 103,000 mou of rice in Paoshan County this year is expected to increase by 10 percent over that of the highest level ever recorded with an average per mou yield of 800 catties. Since last winter 8 communes and 90 percent of the production teams have implemented the labor principle of work evaluation and point allotment. The county has also stopped the practice of unscrupulous eating and drinking, holding banquets and giving gifts. The cadres' participation in labor continues to increase and the county has reduced its irrational burden on the peasants. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 7 Oct 78 HK]

MITU COUNTY AGRICULTURE--Mitu County reported that by 6 October the county had reaped rice on 61,000 mou of land, accounting for 67.3 percent of the total size of land; and transplanted wheat on 8,040 mou of land, and broad beans on 9,800 mou of land. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 16 Oct 78 HK]

HSIANGYUN COUNTY HARVEST--Hsiangyun County reported that by 7 October the county had reaped corn on 90,000 mou of land and miscellaneous grain on 100,000 mou of land. At the same time, it had also transplanted wheat on 10,000 mou of land, and broad beans on 4,000 mou of land. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 18 Oct 78 HK]

YUNNAN COUNTY AGRICULTURAL PRODUCTION--Over the past few years, Chienshui County has developed spring-harvest crop production comparatively quickly. The total yields of spring-harvested crops each year in the past 4 years have been twice as much as before 1974. The total yield this year is 44.4 percent more than last year. In 1970, 70 percent of the arable land in the county was sown to spring-harvested crops. The county has now fulfilled its quotas for sowing wheat, broad beans, soya beans and rape on some 193,000 mou--40,000 mou larger than last year. By 18 October the county had sown spring-harvested crops on some 66,000 mou--23,000 mou larger than in the corresponding period of last year. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 22 Oct 78 HK]

AGRICULTURAL QUOTAS FULFILLED--Ssumao Prefecture has fulfilled its quotas for processing grain and oil 3 months ahead of schedule. By the end of September the prefecture had submitted a profit of some 412,000 yuan to the state, twice as much as the total amount of profit from 1975 to 1977. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 22 Oct 78 HK]

YUNNAN COUNTY ENTERPRISES--Yuchi County reported that it had run 200 commune- and brigade-run enterprises in 1977. The total value of their output reached 9.8 million yuan, accounting for 16.6 percent of the total value of the county's industrial and agricultural products. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 24 Oct 78 HK]

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END