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REPUBLIC OF CHINA

by I. K. Maksimenko

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FOREWORD

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THE DEVELOPMENT OF COTTON GROWING IN THE PEOPLE'S
REPUBLIC OF CHINA

[Following is the translation of an article by
I. K. Maksimenko in Sel'skoye khozyaystvo turk-
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Many regions of the CPR (Chinese People's Republic) have
soil and climatic conditions suitable for cotton growing. Chinese
peasants have long been engaged in this valuable cultivation.

Prior to the establishment of the People's Government
(1949), the level of cotton production in China was very low.
For example, in 1949 440,000 tons of cotton was gathered. After
the formation of the CPR, cotton growing in China achieved unpre-
cedented development. By 1952, three years after the liberation
of the country, the gross cotton yield increased to three times
that of 1949; in 1959 a crop of 46.2 million tan (20 tan = 1 ton)
(2,310,000 tons of cotton fibre) was expected, that is, 5.2 times
more.

Previously in China cotton crop yields were low. For example,
the 1949 cotton yield on 1 mou (1 mou equals 0.06 hectare) was 10.8
kg. After the liberation, thanks to a change in production relations
and improved work techniques, cotton crop yields began to rise rapid-
ly. Crop yields in 1958 more than doubled these of 1949. The gross
production of cotton in China is now second in the world; the time is
not too distant when the CPR will emerge in first place in cotton
production and will far outdistance the US, a country which has
developed cotton growing.

The cotton growing communities of the CPR began to produce
yields never before heard of in the country. Cotton growing is
expanding from year to year in China: improved methods bring forth
higher yields. In China the government bought considerably more
cotton in 1959 than in 1958. High cotton yields are obtained by
workers of cotton growing communes of the leading cotton planting
regions of the country, Hopei and Honan provinces. In these re-
gions 30% more cotton was gathered in 1959 than in 1958, and the
farmers of the Hsin-feng [?] District harvested almost 17 cwt of
cotton per hectare, which amounts to 50 centner/ha of raw cotton.

Interesting figures are given on cotton yields in the Province of Honan. One-seventh of the entire cotton-raising area in China is located here. Honan holds second place in the country in the quantity of cotton raised. In this huge cotton growing province three million mou were planted in cotton in 1949. In 1958 the area under cotton cultivation grew to 13.2 million mou and yielded up to 22.2 kg of cotton per mou.

In 1959 in the District of Hsiao-shan, Province of Anhwei, a cotton crop of 105 kg per mou was gathered in an area of 130,000 mou. Certain communes of this district get an average yield of 315 kg per mou in an area of 20,000 to 23,000 mou.

During our stay in the CPR we visited the people's commune "Wei-hsing" [?] in Honan Province. This large commune raises a variety of farm products; it is organized on a basis of 27 production cooperatives and is composed of a merger of 23 villages, which have a total of 10,988 farm households, and a population of more than 54,000 people. Of the 148,000 mou of tillable land, 62,000 mou, about 40%, is used for cotton planting.

Prior to the liberation of the country, the cotton crop was 11.5 kg per mou. In 1957 it had already doubled, yielding 23 kg per mou, and in 1958 the yield of cotton reached 40 kg per mou; that is, 74% more than in 1957 and 3.5 times more than in 1947. A still higher yield was gathered in this commune in 1959. The great growth of cotton production achieved by farmers of the "Wei-hsing" commune can be attributed to the merger of communities into a single commune; now they are better able to organize their labors and utilize their land by making use of the mechanization of many processes used in cotton growing. In 1959 the commune already had 20 tractors, more than 60 pumps for pumping water from the wells, and other technical equipment. All these greatly lightened the farmers' manual labor required in the cultivation of cotton.

The broad and rapid development of cotton growing in the CPR necessitated the undertaking of a series of organizational measures to establish seed breeding management. To preserve the purity of the existing varieties and to improve the quality of seed cotton for the development of cotton raising on socialist principles, a strict government system of seed management is essential. We are conducting a great experiment in this field in the Soviet Union, where cotton seed breeding, like other cultivation, is placed on a scientific foundation. It is, therefore, quite natural that the Chinese cotton growers are eager to emulate this great experiment in the organization of seed breeding as a basic means of further expansion and improvement of the quality of their domestic cotton.

After liberation, scientific-technical cadres for cotton growing sprang up in China. An Academy of Farm Management Sciences was organized; within its system is the Central Scientific Research Institute of cotton growing. There are many regional scientific

research institutes which conduct experimental work on cotton growing. More than 50 experimental stations in the cotton-raising provinces and autonomous regions are engaged in scientific research on cotton growing. There are many agricultural stations organized under local control.

The history of cotton growing in China with reference to the origin and variety of species is characterized by a very ancient import of Gossipium Herbaceum and Gossipium Arboreum. Gossipium Arboreum is more widely planted in China. It has been raised here for more than a thousand years, and is called "Chinese Cotton." Cotton classified botanically as Gossipium Hirsutum was introduced in China only in 1895, and has been planted here for only a little more than sixty years.

In spite of the relatively long time span during which these species were cultivated, prior to the formation of the Chinese People's Republic in 1949, less than 50% of all land cultivated for cotton was planted with these species. In addition, graded seeds were used on only 10% of the available area; ungraded seeds were used on the remainder.

After the Chinese People's Republic was established, steps were taken to distribute to the most suitable regions high grade local and imported seeds of Gossipium Hirsutum. Seed breeding districts were organized, premium rates were introduced in payment for the surrender of the best grades of seeds, and a series of other measures were put into effect. All this enabled the CPR as early as 1956 to have 89% of all the area used for cotton growing to be planted with varieties of Gossipium Hirsutum.

Presently the following high grade varieties of Gossipium Hirsutum are distributed and grown in CPR.

Variety DPL-15: This is the most widely used cotton variety in China. It is grown in the principal cotton raising provinces of Hopei, Shantung, Honan, Shansi, Kiangsu, Hupei, Hunan, and others. It is cultivated on about 60% of the total area under cotton cultivation (52.4 million mou).

The shrub of this variety of cotton has a full spread, a strong stem, and is of average height, about 100 cm. Fruiting branches start from the sixth node, and are relatively long (internodal distance is 9-12 cm). Leaves are medium sized; the blades are thin and light green. The bolls are of a rounded egg shape, with thin locks; the bolls open wide, and the staple stays in the boll quite well. The staple weight of one boll is 5.5 g. The seeds are relatively small; the weight of 1,000 seeds is 100-120 g; the linters are light gray. The fluff flare-out is 38-41%. Length of staple, 29-31 mm; strength, 4.3 g; metric number, 5713; unravelled length, 24.5 km. Variety DPL-15 is related to medium fast-growing varieties; the vegetation period is, on the average, about 130 days.

Variety Stoneville 2B. This is a spreading shrub, with a main stem height of 100 cm. The stem is strong, with elongated internodal distances along the main stem, and fruiting branches, and a weak leafing of stem and branches. Fruiting branches start at the sixth node. The leaves are large, the blades are somewhat thick and dark green. The boll is rounded and usually has five locks. The staple weight of one boll is 6-7 g. The seeds are medium sized (1,000 seeds weigh 120 g); linters are gray. Fluff flare-out is 36-38%. Length of staple, 28-30 mm; strength, 4.2 - 4.7 g; metric number 5200.

Variety Stoneville 2B is a medium fast-growing variety. Its vegetation period is about 130 days. According to 1958 figures, it is grown on an area of 4.7 million mou.

Variety Stoneville 5A: A spreading shrub, with the height of the main stem about 90 cm. First fruiting branch starts at the sixth node; main stem and fruiting branches are relatively thin. The leaves are small, the blades are thin and light green. The egg shaped boll is somewhat sharper at the end. The staple weight of one boll is 5-7 g; locks are thin, and open widely. The seeds are medium sized (1,000 seeds weigh about 120 g); linters on seeds are light gray. Fluff flare-out is 35-38%. Length of staple, 28-30 mm; strength, 4.6 g; metric number 5750.

Variety Stoneville 5A also is a medium fast-growing variety with a vegetation period of 130 days. The characteristic peculiarity of this variety is that at the end of the vegetation period the main stem stops growing. The plant gives consistently good yields even under changing conditions of cultivation. According to 1958 figures this variety was cultivated in China on 3.78 million mou.

Variety 517: This is a fast-growing variety of cotton, with a vegetation period of 121 days. It is a low-growing compact shrub (height of main stem is 50-70 cm). First fruiting branches appear at the fifth or sixth node. The internodal space on main stem and branches is short. Leaves are relatively small, and dark green. The bolls are somewhat small with an elongated, sharpened shape (cone shaped). Locks are thin, and open widely. There are four to five locks. The staple weight of one boll is 405 g. The seeds are small (1,000 seeds weigh 104 g.), with greenish gray linters. Fluff flare-out, 35-37%; length 25-26 mm; strength 5.7 g.

Plants of variety 517 cotton stand up well under draught, wind, low temperature, and salt. At the present time, in China, an area of 4.22 million mou is under cultivation with this type of cotton.

Variety Tieh-tzu 531: This is a medium fast-growing cotton variety, with a vegetation period of about 130 days. It is a spreading shrub; its main stem height is 90-120 cm; it is light brown, and slightly tinged with anthorayan. Fruiting branches are thin and elongated. The first fruiting branch is at the sixth or seventh node. The leaves are of medium size, with sharply lobed blades, drak green. The boll is an elongated egg shape with a pointed end; in the majority of cases, it has five locks. The locks are thin, and open widely. The staple weight of one boll is 4.6 to 5.4 g. The seeds are of medium size (1,000 seeds weigh 110-120 g), and are covered with light gray linters. Fluff flare-out is 31-33%, length 30-32 mm. Variety Tieh-tzu 531 is planted in China over an area of about 2.3 million mou.

Variety Tzu-tzyueh-tieh-mien: This is a medium fast-growing variety with a vegetation period of 126-139 days. It is a spreading shrub, with a main stem height of 60-115 cm. Fruiting branches are thin and elongated; they start at the seventh node. The leaves are medium sized; the blades are strongly lobed, fuzzy (similar to a chicken foot), and dark green. The boll is a rounded egg shape, and usually has five locks. The staple weight of one boll is 4.3 to 5.2 g. The seeds are medium sized and covered with thick, greenish-gray linters. Fluff flare-out is 32-34%; length, 30-32 mm. This variety is cultivated over an area of 1.5 million mou.

Variety Pin-chuan-373: This variety is fast-growing, with a vegetation period of 110-130 days. The shrub is squat, compressed, and column shaped; the height of the main stem is 50-70 cm. Fruiting branches are short, and begin at the fourth or fifth node. Leaves are small, and thickly covered with fuzz. The bolls are round shaped, with four to five locks, which open widely. The staple weight of one boll is 4.5-5.5 g. Fluff flare-out is 37%; length is 26-27 mm. Seeds are relatively small (1,000 seeds weigh 112-115 g), and are covered with grayish-brown linters. This variety is not widely distributed; the planting area is 18,000 mou.

Variety Stonevill 5-A: This variety has an intermediate growing period; its vegetation period is 115-138 days. The shrub is relatively compact; the height of the main stem is 80-100 cm. The stem is a tamed violet-reddish color. The first fruit-bearing branch appears at the sixth or seventh node. The leaves are medium sized and strongly lobed. The boll is of a rounded egg shape, and has four or five locks. The staple weight of one boll is 4.8 g. The seeds are relatively small (1,000 seeds weigh 97 - 98 g.), and are covered with light gray linters. Fluff flare-out is 36-37%; length 27-28 mm; strength, 41. g.; metric number 5,138. The variety is little distributed as yet; only 8,000 mou were planted.

Variety Mi-tzu 103: The vegetation period is 126-130 days. The shrub is spreading, with a stem height of 80-100 cm. The first fruiting branch forms at the sixth node. The leaves are medium sized, with thin, light green blades. The bolls are of an elongated round shape, usually with four locks. The locks are thin, and open widely. The staple of one boll weighs 4.5 to 5.1 g. The seeds are medium sized (1,000 seeds weigh 118-131 g), and are covered with light gray linters. Fluff flare-out is 34-36%; length, 26-28 mm; strength, 3.9 - 4.6 g; metric number, 5,800. Up to 70,000 mou are planted with this variety.

Variety Kuan-nun-1: This variety is fast growing, with a vegetation period of 114-145 days. The height of the main stem is 60-80 cm; the shrub is compact and cone shaped. The stem is weakly leaved and is light red. Fruiting branches start at the fourth node. Leaves are medium sized, and the blades are normally three-lobed and dark green. The boll is an oval-round shape with a blunted end, and usually has four locks which are thin, and open widely. The staple weight of one boll is 4.2 g. The seeds are relatively small (1,000 seeds weigh 97-108 g), and are covered with gray-brown linters. The fluff flare-out is 30-33%, average staple length, 23 mm; strength 4.5 g; metric number, 4,837. The variety is planted principally in the provinces of Liaoning and Hopei. The cultivated area is 3 million mou.

Variety Tsum-yu-5: This is related to fast-growing varieties of cotton; the vegetation period is 110-120 days. The shrub is low and compact, with a main stem height of 50-60 cm; it tends to be low-spreading. The first fruiting branch appears at the third to fifth node. The fruiting branches are thin, and bend down under the weight of the bolls. The leaves are small, strongly lobed, ruffled along the edges, and green in color. The boll is an elongated round shape, and has 4 to 5 locks; the locks are thin and open widely. The seeds are relatively small (1,000 seeds weigh 103 g), and are covered with gray-green linters. Fluff flare-out is 34%; length of staple, 23-24 mm; strength, 4.2 g. The planted area is about 150,000 mou.

In addition to those mentioned above, there is a series of prospective varieties of cotton which are undergoing extensive production tests; among them are: Hsu-chou-209, Pen-tze-4, Chang-chun-3, Yao-tsuan-1, Hsi-yao-wan-5. The varieties enumerated above are preferred over previous regional varieties of cotton.

Chinese cotton breeders pay great attention to the production of cotton varieties imported from the Soviet Union. For example, fairly large areas in the cotton-raising regions of northern China are planted with Soviet fast-growing varieties of cotton; OD-1, S-3173, 1298, KK1543, 611B, 108F, and others.

In Sinkiang and in the provinces of Yunnan and Kwangtung a thin fibered (Gossipium Barbadense) variety of cotton was introduced. Here also Soviet thin-fibered varieties such as 2-I-2, 5476-I, 8704-I, 5904-I, 35-1 and others are widely tested. For instance, the Soviet thin fibered variety 2-I-2 is cultivated in Sinkiang on an area of 14,000 mou.

The Communist Party and the People's Government of China exhibit continuing interest in the development of cotton growing in their country.

The Ministry of Farm Management of the CPR developed an experimental variation of instruction in cotton seed breeding. In conjunction with this, there were organized and put in operation 49 seedbreeding farms which started production of premium cotton seeds. Further development and standardization of the seed breeding system in the CPR will unquestionably show positive results by a crop increase and an improvement in the quality of cotton production.

A 12-year plan for the development of farm management in China (1956-1967) is attempting and realizing a series of measures to develop farm management; cotton growing is included in this. It is intended to intensify efforts on selection, variety testing, and seed breeding, in order to be able in the near future to plant the best varieties of seeds in all the areas. It is planned to build many large and small irrigation works, to eliminate flooding, and to improve artificial watering of fields during the periods of draught. Much attention is being devoted to enlarging stocks of local manure and intensifying the development of mineral fertilizer production, chemical poisons, and equipment to combat disease and pests harmful to cotton. New farm machinery, equipment, and tractors will be steadily produced. The energetic development of industrialization in China shows strong action toward the improvement of agro-techniques of cotton growing.

All measures set forth under the plan for farm management development in the CPR will insure an increase of cotton crop yields up to 7.5 cwt of cotton per hectare.