Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Attention-
Sweet Corn Growers!

Don't Gamble Again with Wilt Disease

Plant Wilt Resistant High-Yielding Hybrid Seed

62.6

WILT DISEASE RUINED MORE SWEET CORN THAN DROUTH LAST SEASON

Interested and Interesting.
One of the Detasseling Crews at Quaker Hill Farm

Quaker Hill Farm

HONEOYE FALLS, N. Y.

Important Information for Sweet Corn Growers, Canners, and Seedsmen

March 1, 1934

Dear Friend:—

The recent spread of Stewart's Wilt Disease of Sweet Corn and the disastrous losses resulting from it make it the most serious setback sweet corn growing ever has experienced in the North Central and North Eastern States. Last season wilt was present and more or less severe in practically all the sweet corn growing sections east of the Mississippi excepting the northernmost parts of the New England States, New York, Michigan and Wisconsin. It was also present west of the Mississippi, in the southern States, in Missouri, and in the eastern part of Iowa. Losses were least serious in the late varieties but midseason varieties suffered badly and a very high proportion of all early varieties were 50% to 100% failures as a result of wilt. In many cases losses which were really due to wilt were attributed to drouth and heat. All told many thousands of growers lost heavily last season from the wilt disease of sweet corn.

On the other hand, the recent introduction of hybrid sweet corn seed, produced by **controlled** cross pollination, marks the greatest forward step ever made in sweet corn culture and promises nearly complete relief from the wilt disease. In tests by experiment stations and hundreds of growers during the last two or three years from Maine to California and from Florida to Washington, some of these hybrids have regularly yielded 25% to 100% more corn of equal or better quality and of remarkably greater uniformity than old favorites. Certain wilt resistant hybrids have made practically full crops under severe wilt conditions which caused complete failures of old varieties. The performance of these best hybrids has been simply astounding.

Everyone concerned with the growing of sweet corn should know the facts about these two developments. They are exceedingly interesting as well as vitally important (see pages 2 and 3).

Quaker Hill Farm was one of the first in the country to produce commercially by controlled cross pollination, this new type of hybrid sweet corn seed. We have gained the experience, acquired the technic, trained the help and provided the equipment necessary for producing hybrid seed of reliable quality. In several tests conducted by disinterested persons, hybrids from Quaker Hill Farm have shown definitely higher percentages of wilt resistance and closer to 100% true hybrid characters than some of the other hybrids in the tests. If one is to pay the necessarily higher price for hybrid seed, it is important that one be assured of getting as nearly as possible 100% true hybrid seed. Reliability of the source is far more important with hybrid seed than with open pollinated seed.

We have tested and followed closely the state tests, of numerous new hybrids. Our offerings and our recommendations are based on these tests and our knowledge of wilt disease. We believe we are offering the best and most profitable that are available. See page 3, bottom.

Yours for better sweet corn,

K. C. LIVERMORE

Stewart's Wilt Disease

The following statements are based on reports from 26 plant disease and vegetable crop experts at 18 different experiment stations and from some 200 county agricultural agents and growers and canners in the Northeastern and North Central States. We thank them for their cooperation.

Wilt was first studied and described by Dr. F. C. Stewart of the New York Geneva Agricultural Experimental Station in 1894 to 1897. He found it on Long Island and in New Jersey where it was then doing considerable damage but later subsided. The disease has been for years quite generally prevalent in the Southern states and has practically eliminated from commercial production there all but late varieties of sweet corn, which resist or escape infection. Until recently, however, wilt has been absent from the northern tier states. In 1924 it began to spread northward and was reported in Ohio. It had spread over Illinois, Indiana, Ohio, Pennsylvania and New Jersey by 1931. In 1932 it moved into Southern New England, New York and Michigan and in 1933 was reported in all but the northernmost parts of these states. It is true that some sections and many farms in this area have so far escaped but on the basis of spread in the last two seasons, all seem liable to infection this next season unless some natural agency checks the disease.

This disease affects all sweet, pop, and field corns but is most destructive in early varieties, frequently causing complete loss of the crop. It is caused by a strain of bacteria which finds entrance to the plant by root, stalk, or leaves, fills up the vascular system and so cuts off the sap circulation and causes the plant to wilt. Infection may occur at any stage of growth, from seedling to maturity. If infection occurs late enough a crop may be secured.

Early infections usually are at base of plant. Wilting and withering progress upward till the stunted plant is dead. Later infections may start anywhere at any stage. The wilting usually spreads first in streaks along the leaves or stalks, then the streaks merge till the entire plant is dead, but sometimes the wilting diffuses quite rapidly. The wilted leaves are not yellowish but grayish brown. The spread from plant to plant may be slow or it may be so rapid that apparently healthy fields will succumb in a few days. The bacteria causing wilt may be squeezed out of the sap tubes of a freshly cut end of a diseased stalk. They appear as a sticky yellow substance.

The bacteria are carried over in the seed and in the bodies of certain insects, and they probably survive at least one winter in the soil and in refuse. They are spread from plant to plant by corn rootworms, twelve spotted cucumber beetles, flea beetles, leaf hoppers, thrips, chinchbugs, and possibly by horses, men and machines moving along the rows. Weather conditions favorable for the insects hasten spread of the disease. It is possible that low winter temperatures and deep freezing of the ground may reduce insects sufficiently to lessen the spread of the disease in 1934. While this is to be hoped for it cannot be counted upon.

Soil and weather conditions favorable for plant growth seem to favor wilt disease.

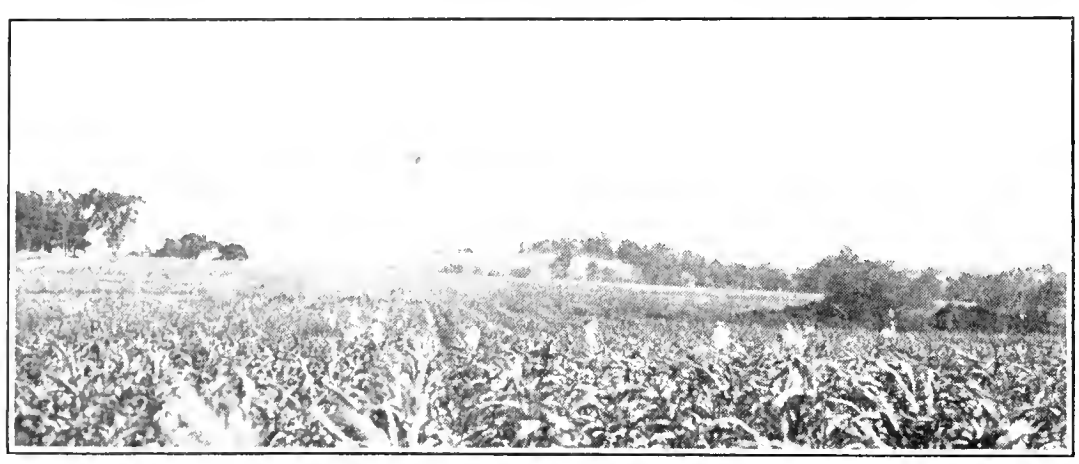
Neither treating the seed nor dusting or spraying the plants has given satisfactory control.

In general later planting of the same varieties seems to show less wilt than early planting, but there are exceptions.

Different varieties vary in susceptibility. All early sweet corns both white and yellow are highly susceptible and some early flint corns are susceptible. Midseason varieties are less susceptible. Late sweet corns and dent field corns are least susceptible.

Certain inbred strains of sweet corn produced by artificial self fertilization for several years have proved to be highly resistant. This is particularly true of Purdue Bantam (1339) produced by Dr. G. M. Smith of the U. S. D. A. at the Indiana Experiment Station and several other inbreds produced at other experiment stations but not yet released for commercial use.

Hybrid seed produced with some of these resistant inbreds carries a high degree of resistance. As far as is known now, these resistant hybrids and late varieties offer the only reliable means of avoiding serious loss from Stewart's wilt disease. Even if wilt disease should be eliminated by natural causes, the use of these more expensive hybrid seeds will prove very profitable because of the higher yields, equal or better quality, and greater uniformity as compared with open pollinated sweet corns.



Detasseling to Make Golden Cross Bantam

Hybrid Sweet Corn

One of the most interesting and successful plant breeding achievements of recent years is the production of hybrid sweet corns that actually yield 25% to over 100% more than the old favorites, and that are amazingly uniform and of wonderful quality.

The old method of improving sweet corn was to select early ripening ears of the desired type from healthy plants. Progress was very slow because the breeders knew the characters of only one of the parents. The pollen might have come from an inferior plant. The next step was to artificially cross two kinds of corn to get various recombinations of the characters of each. If something better resulted, then it was stabilized by selecting and close breeding. Golden Gem and Spanish Gold are results of this kind of breeding. The latest method of breeding is much better.

HYBRID INBREDS

Plant breeders have learned that by artificially inbreeding strains of corn for some years, then crossing them by controlled pollination, they usually get in the first crop remarkable "hybrid vigor" and also always the same definite and uniform characteristics. After producing hundreds of inbred strains and crossing them in thousands of different combinations, the breeders have succeeded in finding combinations of inbreds that produce hybrids that are mighty near perfection. Golden Cross Bantam and Redgreen are examples. They are called hybrid inbreds.

TOP CROSSED HYBRIDS

Sometimes an inbred strain is so prepotent that when crossed on open pollinated strains, its characters dominate in the hybrid. Such hybrids are called Top-Crosses. They may not equal hybrid inbreds but are much better than open-pollinated strains. Purdue Bantam (Inbred No. 1339) is used successfully in making Top-Crosses. Our Top-Crossed Sunshine and Top-Crossed Golden Bantam are examples.

METHOD OF CROSSING

The controlled crossing of two different corns is accomplished by planting one row of the pollen parent to every two to four rows of the seed parent. Every plant in the seed rows is kept detasseled thruout the season so that their ears are fertilized by the pollen parent. These cross fertilized ears produce the hybrid seed. The two parent strains have to be maintained separately, and kept strictly self fertilized. Timeliness, thoroughness and everlasting watchfulness are absolutely essential.

YIELDS

The hybrid sweet corns we offer have yielded 25% to over 100% more than comparable open pollinated varieties. The following comparisons are from a few of numerous unbiased tests.

U. S. D. A. Circ. 268.

"In trials conducted for three years at LaFayette, Ind, this hybrid (Golden Cross Bantam) produced on the average, 3.84 tons of green corn per acre as compared with 2.49 tons of green corn per acre obtained from the highest yielding open-pollinated

strain of Golden Bantam grown under comparable conditions. On the basis of cut corn from ears in prime canning condition, Golden Cross Bantam produced 26% more than this strain of open pollinated Golden Bantam (Our Note. This green corn yield of the hybrid figures 54% more. The yield of cut corn per acre figures 94% more).

During the period of its development, Golden Cross Bantam has occasionally been compared with larger-eared and later-maturing yellow varieties, such as Whipple Yellow, Bantam Evergreen, and Golden Evergreen, and has been consistently superior to them in yield. In co-operative trials in the various States this hybrid has uniformly produced more green corn than have strains reaching the canning stage at comparable dates"

Crossing Purdue Bantam and Golden Bantam

From Report on N. Y., Geneva, Ex. Sta. '33 Trials Comparing Hybrid and Open Pollinated Corns at Different Stages of Maturity.

	At Best Canning Stage		At Maximum Yield		At Maximum Yield	
	Regular Golden Bantam	Golden Cross Bantam	Regular Golden Bantam	Golden Cross Bantam	Regular Golden Sunshine	Top-Crossed Sunshine
Ears per acre	5578	15107	9043	15607	13340	12284
Sorted Husked ears, lbs.	1133	4812	1942	5893	2117	3524
Cut corn, lbs.	350	1660	899	2557	917	1498

Conn. '33 trials at Mt. Carmel by New Haven Exp. Sta. Top-Crossed Golden Sunshine hybrid yielded 88% more marketable ears per acre than regular Golden Sunshine. Golden Cross Bantam yielded 15,000 marketable ears against 5000 down to 0 (complete failure) for several strains of regular Golden Bantam.

Maine '32 trials by Exp. Sta. The hybrid Bantam yielded 27½% above regular Bantam.

California '32 trials by Ex. Sta. Top-Crossed Bantam yielded 56% better than regular Bantam.

Illinois '32 trials by a canner. In weight of ears Golden Cross Bantam yielded 56% more and Top-Crossed Bantam 78% more than regular Bantam. The yield of cut corn was 115% more from Golden Cross and 107% more from Top-Crossed Bantam than from regular Bantam.

New York '31 trials by Cornell Exp. Sta. The Redgreen hybrid outyielded Stowell's Evergreen by about 75%.

UNIFORMITY

The first crop from hybrid inbred seed is most uniform in all respects including ripening. This means fewer pickings, often only one picking, and a larger percentage of marketable ears harvested. It means less immature or over ripe ears and more uniform size, shape and color. For marketing or canning, this uniformity is very valuable. The top-crossed hybrids are not quite so uniform but more so than regular strains.

QUALITY

The sweetness and tenderness of these hybrids equals or excells that of nearly all other sweet corns. Quality has been considered fully as well as yield in developing them. A "blindfold test " by canners of Bantam type corn grown and packed under uniform conditions for the Geneva Experiment Station gave the new hybrids the highest quality ratings. Top-crossed Sunshine and Redgreen rank right with the Bantam hybrids. Probably because of greater vigor, these hybrids retain satisfactory eating or canning condition several days longer than other corn.

HYBRIDS GOOD ONLY FIRST YEAR

These results are secured fully only in the first crop from the crossed seed. Later crops drop back quickly to the original level of the strains used. It is necessary, therefore, to use each year seed that was produced by controlled corn pollination in order to get maximum result.

COST

Obviously hybrid sweet corn seed must cost more. More skill, closer supervision, much more labor and more capital are required to produce it, and yields are lower because the pollen row does not produce hybrid seed and because some of the seed parent inbreds are poor yielders. However, in terms of even one season's results, hybrid seeds are the most economical and profitable one can buy.

1934 Sweet Corn Offerings

From the hybrid and open pollinated sweet corns available, we have chosen the following as best for early to late harvest. Please read descriptions and our suggestions carefully. Prices are given below. (We regret that no real early wilt resistant hybrids are available this year but we can promise several new ones for next year. Remember to write in for them).

WILT RESISTANT HYBRIDS

Top-Crossed Golden Sunshine, 76 days here, **wilt resistant,** usually 80% or more wilt free, ears 7-8", 12-rowed, abundant yielder, excellent quality, very uniform. Plant enough for 6 to 10 days picking.

Top-Crossed Golden Bantam, 84 days here, **wilt resistant,** usually 80 % or more wilt free, ears 7-8", 12-rowed, heavy yielder, high quality, very uniform. Plant only for 2 to 4 days picking. (Only Butt & Tip Grades available).

Golden Cross Bantam, 86 days here, **most wilt resistant and highest yielder of all yellow sweet corns,** usually 90% or more wilt free, ears 8", 12-rowed, finest quality, greatest uniformity. Make successive plantings for picking to end of season. Your trade will stay with you as long as you have this corn.

OTHER RECOMMENDED VARIETIES

Very Early Varieties to Precede Above

Golden Gem, 66 days, very susceptible to wilt, small ears but very sweet and tender, light yellow, fair yielder very short stalks. Recommended only for home gardens in sections free from wilt disease.

Spanish Gold, 68-70 days here, susceptible to wilt but less so than other early yellow sweet corns. Ears 6", 8-12 rowed, deep rich yellow, only fair quality and uniformity, but very good yielder, medium stalks. Recommended for not over 10% of planting and only where wilt has not been prevalent.

A Late Hybrid White Sweet Corn To Follow Golden Cross Bantam

Redgreen, 92 days here, susceptible to wilt, but usually escaping it unless planted early or where wilt conditions are especially bad. Ears white, 8-9", 12-14 rowed, stalks 7-9'. Very prolific yielder. Wonderfully tender and sweet. Attractive and distinctive red and green husk coloring. Holds quality well. Limited acreage for late harvest recommended where wilt has not been serious.

PRICES, Per Lb	Postpaid Under 2 Lbs.	Postpaid 2 - 19 Lbs.	Freight Collect 20-99 Lbs.	Freight Collect 100 Lbs. Or More
Top-Crossed Golden Sunshine	$.60	$.45	$.40	$.35
Top-Crossed Golden Bantam*	.55	.40	.35	.30
Golden Cross Bantam*	.60	.45	.40	.35
Golden Gem	.40	.25	.20	.15
Spanish Gold	.40	.25	.20	.15
Redgreen	.50	.35	.30	.25

Prices include treatment with Semesan Jr. to help insure good stand.

TERMS: Full payment with order, or 20% with order and balance on delivery.

* In varieties starred we have Butt Kernel Grade (large round and irregular kernels from butts of ears) at 5c less; and Tip Kernel Grade (small kernels from tip of ears) at 10c less. Both will produce as well as the standard grade.

Think This Over

The Proven Facts are:—

1. Yields 25% to over 100% better are secured from the hybrid sweet corn seed described herein, than from such old favorites as Golden Bantam, Whipple's Yellow, Golden Sunshine and nearly all early and midseason open pollinated varieties.

2. If wilt disease is as bad this season as it was last season (and it promises to be) thousands of acres of susceptible varieties will be 50% to 100% failures while the resistant hybrids offered here will make 50% to 100% full crop.

Considering these facts, is it good business for any grower to plant low yielding open pollinated varieties or wilt susceptible varieties? Is it good business for any canner to furnish such seed to his growers? Is it good business for any seedsman to encourage his customers to plant them?

QUAKER HILL HYBRID SWEET CORN MADE GOOD WITH THESE FOLKS

"I am writing you this to let you know how thankful I am that I bought your Top-Crossed Golden Bantam sweet corn seed last year as it turned out a big crop and the quality was of the sweetest. It created a sensation on the local market. The same people came after it as long as it lasted and I could not supply the demand. They came to the field every day in order to have it regular. The land I was working would never grow any of the yellow sweet corns and was always 95% failure".

W. K., Newark, Ohio

"I had 10 acres of Golden Bantam in 1932 that I didn't get a dozen ears from. It was nearly all dead before it was a foot high. I plowed it under early in the fall and planted Golden Cross in 1933. Had a perfect stand. No wilt in the field, nor even specks on the leaves and this year was much hotter and dryer than '32".

J. J. M., Volant, Pa.

"Golden Cross Bantam had no wilt at all. Even replanted it where I plowed up ..... (wilt infected) and it did not show any there".

M. L. S., Elmira, N. Y.

"For your information, I would like to inform you that your Top-Crossed Sunshine, Golden Cross and Spanish Gold sweet corns were outstanding in their vigorous growth compared with other varieties grown under identical conditions. I cannot say of course whether the superiority of your corns was due to variety, seed treatment or seed selection, but we harvested more marketable corn from those three - of very good quality".

P. A. R., Bradford, Pa.

"I can truthfully say that we had no wilt whatsoever. The corn germinated and grew as near to 100% as possible and many stalks grew two ears. I do not hesitate to say that this was the best corn we have ever grown for taste, stand and quality. This opinion was also expressed by friends we gave some corn to".

G. P. C., Jeanette, Pa.

"I planted 10 lbs. of your Golden Cross Bantam and never had such a wealth of beautiful perfect golden ears. All buyers said it was the best they ever saw. It was delicious and all of our customers yearned for more".

K. H., Englishtown, N. J.

THEY WILL MAKE GOOD WITH YOU TOO