

California Blackeye 5

state's third most important dry bean being improved for wilt resistance

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The blackeye variety of cowpeas is classed as a dry bean in California but in the southern states it is known as the Blackeye pea.

As a bean variety in California it is the third most important following the small and large lima beans.

The annual production in California from 1929 to 1947 varied from 275,000 bags in 1932 to 1,154,000 in 1940. The average for the 18-year period was 621,800 bags.

The average production of cowpeas per acre in the United States is 5.4 bushels while the California average for the Blackeye variety is about 20 bushels.

The California crop is largely sold in the southern states as dry edible beans, and some are used for seed.

In the latter part of the nineteen-twenties large areas of rather light sandy soil in the San Joaquin Valley were becoming unfit to produce Blackeye beans because of infestation with nematodes and the cowpea wilt.

A breeding program was started to add resistance to these two diseases. For the resistant parent the Iron variety was chosen. It is highly resistant to both these widely diverse organisms. The California Blackeye was used as the recurrent parent in a backcross breeding program.

Eventually the Blackeye 5 most nearly duplicated in growth habit and maturity the old California Blackeye. Because of its superiority in seed size and smoothness and whiteness of the seed coat; its erect, bushy habit, high potential yielding ability, and ease of threshing, it soon spread throughout all the Blackeye growing areas in the state regardless of whether disease resistance was or was not a factor.

It is doubtful if the old Blackeye can be found at the present time anywhere in the state. As the Blackeye 5 increased in acreage in California more seed of this variety was shipped to the southern states for dry beans as well as for seed. Most of the Blackeye planted anywhere in the south from California seed is now Blackeye 5.

Cowpea Wilt

In recent years the cowpea wilt has made great inroads in the destruction of stands of even Blackeye 5. This may be

due to the fact that the resistance of this line was not high, and with heavier attack it has broken down to almost susceptibility; or the wilt organism itself may have changed through known biological processes to produce strains to which the Blackeye 5 is susceptible.

At the present time, which one of the alternatives is true has not been answered by critical experiments.

It is apparent, however, in experimental plots that the Blackeye 5 still has more resistance than the old Blackeye. However Blackeye 5 in the Modesto-Turlock area of the San Joaquin Valley is not resistant enough to wilt to allow planting on wilt sick soil without incurring considerable loss.

Some other strains of Blackeye which have greater wilt resistance are now coming into the Modesto-Turlock area. One has been tested for three years and is being increased for commercial production in 1949. It is a selection known as Blackeye 7. Although it is somewhat later and more viney than Blackeye 5, its higher resistance has made it attractive to many growers.

In those areas where wilt is not so devastating, the Blackeye 5 is still the dominant strain. A number of the early releases are still grown by a few people. In the Chino area, for example, a strain is grown which local growers call Chino 3. In all the tests made, it has been found to be indistinguishable from Blackeye 5.

In order to keep the Blackeye 5 variety pure, a number of seed producer-growers handle certified seed. In 1947 there were 58 growers producing 2,861 acres of certified seed of this variety. These growers are spread well over the state as indicated by their locations by counties: Stanislaus 34, San Joaquin 7, Madera 3, Sutter 3, and one each in Tulare, Merced, Kern, Ventura, Los Angeles and Riverside.

Breeding for Resistance

Breeding experiments are underway to increase the resistance of Blackeye 5 by crossing it to the Iron variety. In the new breeding program, now in its second year, considerable emphasis will be made to reclaim a type which is as near like Blackeye 5 as possible with more resistance to wilt added to it.

The nematode resistance of Blackeye 5

is apparently on a par with any of the other Blackeye hybrids.

The breeding program is bound to take time and southern growers should use Blackeye 5 unless their soil is wilt sick. In that case the next best thing is to switch to the new Blackeye 7 variety.

Since Blackeye 5 still does fairly well under light infestation of wilt, it will probably hold up until a new more resistant type can be bred.

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tering. The fruit holds for a long time, either on the vine or in storage.

Perlette does not show the brown discoloration after handling so characteristic of very early varieties. No large-scale shipping tests of either variety have yet been made to eastern markets.

Thompson Seedless is being used to an increasing extent for canned fruit salad and fruit cocktail mix. Cannerymen have had poor results with the variety largely because the stems do not come off the berries easily. The berries split and do not retain a good color during processing. Both Perlette and Delight have been consistently superior to Thompson Seedless in canning tests conducted in 1946 and 1947 with three commercial canneries.

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wettable powder per 100 gallons of water should be considered.

Time of treatment will depend on the development of both walnuts and the codling moth. In normal instances, the first application in most localities should be made before May 10, and the second, before June 1.

There is insufficient evidence of the certainty of a high degree of codling moth control from DDT dust treatments. Also, the drift of dust—at the time of application—from the orchard onto the adjoining vegetation may have serious consequences.

Until further information is available on these important points, it is not believed that growers should consider use of DDT dust on walnuts.

Use of lead arsenate rather than DDT during 1948 will avoid risks of aphid and two-spotted mite build-up, which is attendant with DDT applications.

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