

Starches treated with alkali have become important as adhesives. Alkali starch glues or "vegetable glues" are now used almost exclusively for wood veneering in the manufacture of furniture, wood panels, and other types of woodworking. These vegetable glues have displaced animal glue to a very great extent for such work. Cassava starch is used almost exclusively for the manufacture of vegetable glue and in the manufacturing of dextrin for postage stamps and envelopes, although other kinds of starch can be used. It is asserted, however, that other kinds of starch yield alkali starches which do not give as satisfactory results when used for woodworking.

There is also an increased production of starches which will swell in cold water to form pastes having properties similar to starch gelatinized at higher temperatures.

Although, as previously stated, it can hardly be expected that any one kind of starch will completely displace all other kinds, undoubtedly our increasing knowledge of the properties of starches, changes in fashions, and other economic changes will have their influence on the kind as well as the quantity of starches used in the future.

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STRAWBERRY Called the A new strawberry of excellent flavor, the Blakemore, is the outstanding result of crosses of the Dual-Purpose Variety Missionary and Howard 17 (*Premier*) varieties made at the United States plant field station at Glenn Dale, Md., in 1923. It is rapidly gaining favor as a market variety because of its firmness, bright light-red color, and uniform shape. It has been tested by the National Preservers' Association and is considered by them as superior to all known commercial varieties for preserving. It has been tested in commercial plantings up to the present time in the strawberry areas from New Jersey to North Carolina and is recommended for that part of the United States. It has not succeeded in the Pacific Northwest, but it should be tested in all regions where the Missionary and the Klondike are grown, as well as in the southern part of regions where the Howard 17 is grown.

Not only has the Blakemore variety shown superior market and preserving qualities, but its characteristics make it well adapted to the present matted-row system of growing strawberries, the method commonly used along the Atlantic coast. It produces plants fully as freely as the Missionary and more freely than the Howard 17. It is more vigorous than either variety, under many conditions at least, and is more resistant to leaf scorch than the Missionary. Limited tests under the hill system indicate that it is also well adapted to that method of culture. Plants kept in hills form many crowns and numerous fruit clusters, hence the production per acre is relatively high under this system.

Has Both Market and Preserving Qualities

The present and prospective importance of strawberry products increases the usefulness of a dual-purpose variety such as the Blakemore. The combination of exceptional market and preserving quali-

ties in one variety enables growers to find more than one outlet for their crop. It is estimated that more than 110,000 barrels of strawberries, or the equivalent of nearly 5,000 cars of fresh berries, were frozen in 1928, chiefly for the preserving and ice-cream industries. The



FIGURE 174.—A plant of the Blakemore strawberry at Willard, N. C., producing its "crown" crop. In North Carolina and southward the Blakemore and some other strawberry varieties produce a late spring crop, the "crown" crop, which follows the usual spring crop. This photograph was taken on June 6

freezing of strawberries has increased steadily in importance in recent years. Better preserves can be made from the barreled berries than from fresh berries, so that the fact that the Blakemore lends itself especially well to preserving and is superior to all known varieties for this purpose widens the market for this variety.

Compared with varieties now grown in North Carolina, the season of the Blakemore is about the same as that of the Klondike, a few day earlier than the Missionary, and 10 days to 2 weeks earlier than Howard 17. In Maryland all of these varieties ripen about the same time. The Blakemore has been more productive than the above varieties under conditions so far tested in the area from New Jersey to North Carolina, but may not be as productive under other conditions, especially on very light soils. (Fig. 174.)

Berries of Good Size

The berries are of good size, slightly larger and more uniform in shape than those of the Missionary. They do not have the long point of the Missionary and have a slight neck. (Fig. 175.) The berries are firmer than the Missionary, Klondike, or Howard 17. Their bright light-red color does



FIGURE 175.—Fruit cluster of the Blakemore strawberry illustrating its shape as grown in New Jersey. Note also that all fruits are ripe on this cluster and that none have spoiled

not change on standing, whereas the Missionary darkens quickly, and the Klondike and Howard 17 darken somewhat more slowly than the Missionary. It is an acid berry of the Missionary and Klondike type, though slightly less acid than either. Its easy hulling (capping) qualities, uniform shape, firm and solid flesh, light bright-red color (that

changes relatively little on cooking), and its high pectin content and excellent flavor make it superior for preserving.

The variety is named for Marcus Blakemore, the first president of the National Preservers' Association, in recognition of his public service in connection with the preserved-food industry. The United States Department of Agriculture has no plants for distribution, but plants may be obtained from cooperating nurseries in the areas to which the variety is adapted.

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SUGAR-BEET Leaf-Hopper Problem Involves Study of Associated Insects The desert breeding grounds of the sugar-beet leaf hopper in southern Idaho have been the locale for extensive investigations on the biology and behavior of the insect during the past year. In these areas, principally composed of abandoned dry-farm lands, vast areas are given over to the host plants of the insect. In addition to the sugar-beet leaf hopper, large populations of other insect species maintain themselves on these plants. Some of these are of economic importance and others potentially so. The entire insect community living on these host plants has been studied, each species being recorded throughout the season, both as to numbers and host plants. This study is being conducted in the belief that the insects associated on these plants constitute a complex social organization whose separate parts are intimately related to each other, and that no single insect species, such as the sugar-beet leaf hopper, can be properly studied without considering its relationships to other insects associated with it on their common food plants.

Data of this type become increasingly valuable as the record of a series of years is obtained, and are of direct application, not only to the problem presented by the sugar-beet leaf hopper but also to other insect problems of southern Idaho. Since extensive traveling must be done throughout the arid regions of the West in connection with biological studies of the leaf hopper in many widely separated localities, the insects associated with it can be studied in comparatively little additional time throughout a wide geographic range. These studies are aimed primarily at a proper understanding of the leaf hopper's biology throughout its entire economic range, with the hope that the information so obtained will be useful in safeguarding the production of sugar beets. One of these projects is concerned with the mapping of the entire western area with respect to breeding grounds and dispersion areas of the insect. Another is the locating of areas which might, from the standpoint of the leaf hopper, be safe for beet culture. A third activity deals with the discovery of areas which might support the beet industry if information were available as to the years of probable leaf-hopper invasion.

Climate and Weather the Chief Factors

It can safely be said that climate and weather are the two determining factors in the development and abundance of the sugar-beet