

Border Bug Battle

Few Land-Grant colleges of agriculture are as near the border of a foreign country as is this college, at The University of Arizona. Likewise, probably all readers of *PROGRESSIVE AGRICULTURE IN ARIZONA* have been stopped at the Nogales border and asked "Bringing any fruits or vegetables?"

But of the thousands who are stopped daily, few realize the importance of that question, or the hazard to our agriculture, our livelihood and food supply, in the possible invasion of insects and diseases from which our crops, trees, soil, and ornamental plants and flowers are now protected. The USDA Plant Quarantine inspectors are doing an important job, and deserve the good will and support of all of us.



At Laredo, Texas, a U. S. Department of Agriculture inspector had some fifth sense telling him to take a second look at a canvas waterbag, hanging from the door handle of an incoming auto. It was a plain Desert waterbag, dripping water from

its plump insides.

But, sliding off the flanged metal strip at the top, the inspector found that it concealed a neat collection of ornamental succulents, which had been concealed there to escape detection.

2 Safflower Composites Available to Breeders

Two new safflower releases are announced jointly by the Arizona Agricultural Experiment Station and the Crops Research Division of ARS., U. S. Department of Agriculture.

The two are Arizona Safflower Composite I and Arizona Safflower Composite III.

Composite I is a composite cross of thin-hull safflower.

The recessive mutant gene, "thin-hull" (*th*), was discovered at the Arizona Agricultural Experiment Station in 1955. The thin-hull gene is pleiotropic in its action causing both a reduction in hull percentage and delayed anther dehiscence. Because the

delayed anther dehiscence acts as a physical male sterile, selected thin-hull lines have been used successfully as female lines to produce hybrid safflower.

The thin-hull characteristic is easily identified by examining newly elongated florets, and can be easily transferred to any safflower line. Because there is incomplete dominance of *Th* on *th*, the thin-hull lines in F_1 hybrids offer the benefits of higher yield than pure lines; and compared to normal-hull lines, hybrids produce increased oil and protein percentages and de-

To Find No Name Creek Head For Hawley Lake

The "No Name Creek" sign, our mystery picture shown on Page 5, was photographed by Bill Woodruff, aggie journalism student and Daily Wildcat editor, at the edge of the bridge on the road leading from Highway 173, out of McNary, and going into Hawley Lake.

creased fiber content.

Arizona Safflower Composite I consists of a bulk of open pollinated seed from nine selected thin-hull lines and their resultant F_1 's obtained from a diallel cross. The seed was produced in an isolation block with honey bees present to cause cross pollination. The nine parental lines were selected on the basis of high percent crossability, stiff stem, and yield.

This thin-hull composite is being released to plant breeders to be used either as a direct source of female lines for producing hybrids or as a source of the thin-hull gene to cross onto other lines. Seeds of this composite are available for distribution to plant breeders in lots of 200 grams or less upon request to Department of Agronomy, University of Arizona, Tucson, Arizona.

Arizona Safflower Composite III is a release to safflower breeders of a genetic stock of pigmentless, striped-hull safflower.

The release of "brown" striped-hull (*stp stp*) experimental lines, A101 and A12417 in Arizona in 1964 offered the possibility of producing commercial safflower with the oil content as high as 45 to 50 percent. There was special interest in the safflower meal from these varieties which had a protein content of 35 to 40 percent and lower fiber content.

However, pilot plant tests run in cooperation with a commercial food company showed that the oil from these lines had low stability and was undesirable for food uses. In 1965 a pigmentless gene (*p*) which prevents the formation of the pigmented melanin layer in the pericarp of safflower seed was discovered at the Arizona Agricultural Experiment Station. The pigmentless gene has been combined with the striped-hull gene, and these lines have the characteristic seed

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Military Prefers Cotton

The military has expressed a distinct preference for 100 percent cotton fabrics in combat uniforms and fatigues in tropical climates. There is more than an adequate supply of cotton, much of it in public storage at government expense, from which to produce such fabrics. And the American textile industry has ample capacity to produce the cotton fabrics needed, at the time needed.

To Join Marketing Co-operative?

HARD-SHELLED PROBLEM FOR EGG PRODUCERS

Arizona poultrymen are now trying to decide whether to join a Southern California marketing cooperative, designed to even out the cyclic hills and valleys of egg prices, and bring more stability to the poultry business.

Southwestern Egg Producers is a California cooperative, serving the intensively urban Los Angeles-San Diego markets. Its directors have asked Arizona producers to join. Producers in this state would join as individuals although, according to Dr. Franklin Rollins, University of Arizona Extension poultry specialist, Arizona participation will be effective only if a considerable majority — perhaps 85 percent — of producers join.

Produce Half Our Needs

Arizona produces only half the eggs it consumes, with the other half coming largely from California. However, the situation is improving. As recently as 1959 this state produced

only 33 percent of the eggs it consumed — and both the percentage and the human population being fed have increased considerably since that time.

Currently the state has slightly over a million laying birds in commercial egg ranches, defined as producing units with 300 or more birds. The trend recently has been for the units to become fewer and larger. Largest unit, in Tucson, has 100,000 birds. Others have 80,000 to 90,000, with 26 of the 117 commercial producers in the state having more than 10,000 laying birds.

Pima county leads the state with 43.9 percent of the laying birds, with Maricopa second with 33.3 percent, followed by Pinal's 8.9 percent, Yavapai with 5.5 percent and Cochise 3.7 percent.

To produce all the eggs it consumes, Arizona would have to double its lay-

ing flock from a million to two million birds. (Just one California flock actually does have over 1,000,000 laying hens!)

Ask For Safeguards

In considering membership in the marketing cooperative, Arizona poultrymen insist that their own market here in this state be protected, so Arizona can take advantage of an expected increase in consumers as population grows. Arizona also asks representation on the directorship of the coop.

The cooperative itself would assign quotas to producers based on past production, much as a dairy cooperative does with milk producers. Surplus beyond quota would be accepted at a lower price than that paid producers for "quota" eggs. Eggs produced here for marketing in Arizona would go directly to those markets — in Tucson, Phoenix, Yuma, etc. — the same as in the past. They would not physically be shipped to California and back, even though the marketing cooperative would have its headquarters, as it does now, in the Los Angeles area. Arizona producers ask also, that banking for their share of the operation be done in Arizona, to hasten payment for products marketed.

Los Angeles Market Low

Traditionally, the Los Angeles egg market — which sets the price pattern for Arizona — has been two to three cents per dozen under New York and Chicago prices. One motive of the marketing cooperative would be to strengthen prices in this Southwest area. The quota and surplus system, however, would be disciplined entirely by the cooperative itself, with no governmental supervision or participation, such as in federal "milk orders" for dairy producers.

The poultry industry, explains Rollins, has built-in hazards of its own, justifying an orderly marketing system. For one thing, the up-and-down cycle of prices, seasonally and over the years, may require a producer to have financing sufficient to carry him through these extended periods. Economic production now requires large units, requiring considerable finances.

Air conditioning, special feed milling and distribution systems, housing, lighting and refrigerated trucks for marketing the eggs are all needed innovations, a far cry from the "family poultry flock" of past eras. Costs are high, margins are slim, hazards are great — an orderly marketing could ease somewhat the rocky path of egg-production in Arizona.

Per Capita Food Purchase

USDA studies indicate that food purchased per capita at the retail level has decreased 200 pounds since 1909. What is purchased today is much more nearly what is actually consumed. Due to pre-processing, less food waste is taken home and there is a saving in storage. Caloric intake has decreased too. Nutritionists estimate that the per capita consumption of calories is 400 fewer than 50 years ago. More meat is eaten today while per capita consumption of starches has gone down.

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shape and low hull percentage similar to the original "brown" striped-hull lines, but are void of the pigmented melanin layer and are white in color.

The pigmentless, striped-hull genotypes now offer the possibility of producing commercial varieties or hybrids with higher oil and protein percentages and very low fiber content. The pigmentless gene has been successfully transferred to all hull types and also may be of value in improving the seed quality of normal safflower. Another possible value may be the production of isolated safflower protein free of discolorants for human consumption.

Arizona Safflower Composite III is a bulk of open-pollinated seed of 44

F₄ lines selected as pure for *p p*, *stp stp* but segregating for *TH* and *th* from the cross of A4138 x A101. The seed was produced in an isolated block and is mostly homozygous for the *p* and *stp* genes. The pigmentless mutant was first observed as white, thin-hull seeds in the thin-hull line, A4138, in 1962 and identified as a mutant gene from the F₂ segregation of the cross A4138 x A101 in 1965.

This pigmentless, striped-hull composite is being released to plant breeders either as a source for pure lines or as a source of these genes to cross onto other lines. Seed of this composite is available for distribution to plant breeders in lots of 25 grams or less upon request to Department of Agronomy, University of Arizona, Tucson, Arizona.