

Dart---New Safflower for the Salt River Valley

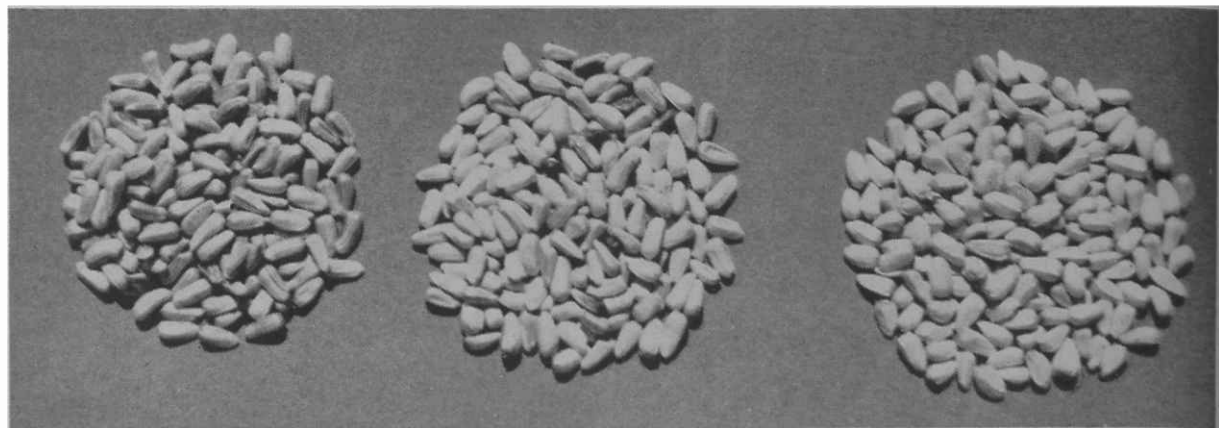
By George H. Abel

Arizona growers in the Salt River Valley can now plant a new safflower variety named Dart. This variety has been released by the Crops Research Division of the U. S. Department of Agriculture and the Arizona Agricultural Experiment Station.

Dart has been compared to Frio and Gila in 10 yield trials over a 5-year period at the University of Arizona Branch Experiment Station at Mesa. It has been tested at the Yuma and Marana Branch Experiment Stations to a lesser extent. Research data point to the Salt River Valley as the best area for growing the variety.

At Mesa, Dart has an average of 40.5 percent oil and yields 3,572 pounds of seed per acre (See table). Oil production is 1,447 pounds per acre. Dart is 1.6 units higher than Frio in percent oil, and 4.8 higher than Gila; approximately 200 and 500 pounds per acre higher in seed yield, and approximately 100 and 350 pounds per acre higher in oil.

Dart is a selection in the F₇ generation from a cross between A5731-5 and 61114-29-9-4-9. Line A5731-5 was developed in Arizona by the Crops



SEEDS OF SAFFLOWER varieties. Left to right — Dart, Frio and Gila.

Research Division and the Arizona Agricultural Experiment Station. The original cross was made at Beltsville, Maryland, and selections in the segregating populations were made at Mesa. The other parent was a high oil line received from Pacific Oilseeds, Incorporated, Woodland, California.

Dart, like Frio, is tolerant to cold in the seedling and early growth stages. Both the plant and seed type are

more uniform than Frio. The plant is as tall as Frio and taller than Gila. Dart has more resistance to lodging than Frio or Gila.

The seed of Dart has a gray-striped hull which is one of the several seed mutations discovered and described in recent years. The mutation causes thin areas to appear in the pericarp or outer portion of the hull. These thin areas are in thin strips extending

Table 1. Comparison of Dart with Frio and Gila in 10 Replicated Yield Trials at Mesa, Arizona, Over a 5-Year Period.

Variety	Seed yield, lbs./acre	Oil %	Oil, lbs./acre	Bushel weight	Height, inches
Dart	3572	40.5	1447	40	51
Frio	3377	38.9	1314	41	50
Gila	3048	35.7	1088	42	47

along the vertical length of the seed. The thin hull character reduces the proportion of hull to the meat in the seed. This results in a higher percentage of oil in the seed and a greater oil production per unit volume of seed. A comparison of seeds of the three varieties is shown in the accompanying photo.

The flowers of Dart are yellow in both fresh and dry condition. Blooming and maturity occur essentially at the same time as in Frio.

Dart is tolerant to the two prevalent races of *Phytophthora drechsleri* Tuck, the fungus which causes root rot of safflower.

Seed can be purchased from the Arizona Crop Improvement Association in care of the Department of Agronomy, University of Arizona, Tucson, Arizona. The Crops Research Division does not handle seed.

This paper is a joint contribution of the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the Agronomy Department, University of Arizona, Tucson, Arizona.

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