REGISTRATION OF DART SAFFLOWER
(Reg. No. 7)
G. H. Abel and D. G. Lorance

'Dart' safflower (Carthamus tinctorius L.) originated as an F7 plant selection from the cross A5731-5 and 61114-29:9-4-9 in a cooperative program of the Ariz. Agr. Exp. Stn and the ARS, USDA. Before release, Dart was known as US 12295. It has the same parentage as 'Frio,' which was a bulk selection from the F5 generation of the cross. Dart was tested in the Salt River Valley of Arizona for a 5-year period before its release in 1968 and was recommended for planting in this area.

Dart is tolerant to the prevalent races of Phytophthora drechsleri Tuck, the fungus that causes root rot of safflower. The cultivar is also moderately resistant to rust (Puccinia carthami Cda.) and to verticillium wilt (Verticillium albo-atrum Reinke and Berth).

Dart has cold-tolerance during early growth. Plant height equals that of Frio and is 5 to 15 cm taller than 'Gila.' The canopy is a little smaller than that of Gila but equal to that of Frio. The canopy is the profile of branches and leaves with the base as the point where the first lateral branch arose from the stem. Head diameter is similar to that of Gila and Frio. Flowers are yellow in both fresh and dry condition. Blooming and maturity dates are similar to those of Frio but are several days later than those of Gila. January plantings in three consecutive years from 1967, at Mesa, Ariz. produced an average of 340 heads/m², which is 8% more than yields from Gila and Frio. However, Dart should not be planted later than the recommended planting dates for safflower, because head number of Dart is reduced considerably more than the other cultivars under these conditions. Seeds/head and seed weight of Dart averaged 30 seeds and 3.87 g/100, respectively, compared to 36 and 28 seeds/head and 3.24 and 3.71 g/100 seed weight for Frio and Gila, respectively.

Seed pericarp thickness of the hull of Dart is reduced by the grey-striped gene, stp. The negative correlation between oil content and hull percentage accounts for an oil content in the seed of approximately 40%, which is 10% higher than that of Gila and nearly 5% higher than that of Frio.

In a 5-year period of testing at Mesa, Dart averaged 4,004 kg/ha in yield, which was 6% more than that of Frio and 15% more than that of Gila. The oil yield of Dart averaged 1,622 kg/ha, which was 9% more than that of Frio and 25% more than that of Gila. The low yield of Gila is caused partly by birds, who feed on the open-type heads of this cultivar.

Breeder seed will be maintained at the Western Cotton Research Laboratory, USDA, ARS, P.O. Box 4135, East Broadway, Phoenix, AZ 85040.

REGISTRATION OF SHORE SOYBEAN
(Reg. No. 107)
T. J. Smith, H. M. Camper, Jr., and J. A. Schilling

'Shore' soybeans [Glycine max. (L.) Merr.] were derived from a cross of PI 80837 and A5731-5. The initial selection was made in the F2 generation. The Mexican bean beetle was recognized in 1972 and was grown in Maryland. Reselection was made in the F5 generation to obtain greater uniformity. Shore is a composite of thirty-seven F8 lines. Shore matures in Maryland 3 days after 'York' and is recommended for production in the coastal Plain areas of Virginia, where the Mexican bean beetle has become a chronic problem.

Resistance to this beetle results from antibiosis mechanisms which reduce adult and larval populations. In field studies, under natural beetle infestations, Shore had 35 to 65% fewer larvae on Shore than on control. Lower insect population resulted in about a 20% foliar feeding damage on Shore as on York in the same field or in isolated plantings.

Shore was compared to York under controlled conditions. The beetle was both uncontrolled and controlled. In these comparisons, the beetles reduced yields to 50% over the 4 years, whereas Shore's yield was only 0 to 14%. In 28 tests at 10 locations in Virginia from 1971 to 73 Shore yielded 2% more than York. Mexican bean beetles were not a problem at four locations with heavy Mexican bean beetle infestations. Shore yielded 17% more than York.

Shore grows rapidly, has a determinate structure, and near vertical branches close to the main stem. Height has averaged 66 cm less than York, well off the ground. Leaves normally are green and rough appearance may be greatly accentuated under poor growing conditions, especially low pH soil.

Plants have purple flowers and gray pubescence. Inflorescence is a narrow panicle. Seeds have a shiny, satiny coat which is more shiny than that of Lee 68. Data collected from trials indicate that the seed yield of Shore is equal to Lee 74 where root-knot nematodes are present. Shore yields up to twice as much as Lee 74 in areas where root-knot nematodes are a problem. It is susceptible to all races of soybean-cyst nematode, Heterodera glycines, Ichinohe. Heritability on Shore has been published (C. E. Caviness, R. D. Riggs, and H. J. Walterse. 1974. Lee 74 soybeans, an improved soybean resistant to root-knot nematode and phytophthora root rot. Crop Sci. 23, No. 2).

Seed was distributed in 1973 for increased testing in New Mexico, Mississippi, North Carolina, Alabama, and Virginia. Breeder seed of Shore 74 will be maintained by the Western Cotton Research Laboratory, USDA, ARS, P.O. Box 4135, East Broadway, Phoenix, AZ 85040.

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