REGISTRATION OF 'REHBEIN' SAFFLOWER

'REHBEIN' safflower (Carthamus tinctorius L.) (Reg. no. 12) was developed at the Eastern Agricultural Research Center, Montana Agricultural Experiment Station, Sidney, MT, and released on 17 July 1980 for 1981 commercial production.

Rehbein originated from the cross Sidney Selection 87-42-3/AC-1. Sidney Selection 87-42-3 is a 1965 selection resistant to Alternaria leaf spot [incited by Alternaria carthami (Chow.)]. This selection was made from the 1964 bulk composite of 555 safflower introductions from the 1960 world safflower collection. The 1964 bulk composite was grown on a lower Yellowstone River Valley site near Sidney, MT that had been continuously cropped to safflower since 1961. 'AC-1' is a high seed oil content cultivar with a purple-striped hull.

The initial cross was made in 1973. Field selection for early flowering and disease resistance to Alternaria leaf spot and bacterial blight [incited by Pseudomonas syringae (Van Hall)] was practiced at Sidney in the F₂ and F₃ generations. Rehbein is an individual F₅ plant selection derived from a composite of three early-flowering, disease-resistant F₃ plants selected in 1975. Rehbein was tested in Montana and North Dakota yield trials as 76B4220 during the 1978 to 1980 period.

Rehbein is an early flowering cultivar with good resistance to Pseudomonas bacterial blight. It has an intermediate level of resistance to Alternaria leaf spot compared to 'S-208', which has a low level of resistance, and 'Hartman' with a high level of resistance. The flowers are yellow in the bud, full bloom, and wilt stages. Rehbein plants are spiny and average 2 days earlier in flowering and maturity than S-208. Mature plants of Rehbein are similar in height to S-208 (50 cm) under dryland conditions but average 5 cm taller (77 cm) under irrigated conditions. Rehbein is similar to Hartman in seed size but slightly shorter in length (1 mm), averaging 5 mm in width and 8 mm in length. Seeds of Rehbein have a predominantly gray-striped hull with an occasional white normal hull (1/100). The test weight of Rehbein averages 31.7 kg/hL compared to 30.8 kg/hL for S-208 in tests conducted at Sidney and Williston over a 6-yr period.

The seed oil content of Rehbein is 4 to 5% less than S-208 under dryland conditions and 2 to 3% less than S-208 under irrigated conditions. Rehbein is slightly higher than S-208 in oil iodine number and linoleic acid content averaging 147 and 78.8%, respectively, compared to 146 and 78.3% for S-208. The seed yield and oil percentage of Rehbein over a 6-yr period averaged 1743 kg/ha and 39.1%, respectively, compared to 1816 kg/ha and 43.0% for S-208.

Rehbein was released and recommended for production in the safflower growing areas of Montana, North Dakota, and South Dakota. Rehbein was named in honor of the late Alfred Rehbein, Sr., a pioneer safflower producer of Lambert, MT, who first introduced safflower into Montana in the 1920s.