CROP REGISTRATIONS

10^{-6}, and 2.5 \times 10^{-6} M SU) with the callus on each medium 14 d. After 12 wk, viable callus sections from the last two subcultures were transferred to shoot induction medium (BSM supplemented with 0.5 mg L^{-1} BA [benzylaminopurine]) until regenerated shoots were 1 to 2 cm in length. At the three-leaf stage, regenerated plants in pots were foliar-sprayed in a Research Instrument Manufacturing Co. Spray Chamber (Guelph, ON) with increasing concentrations of SU. Application to foliage was with a teejet full-cone nozzle (TG 0.7) calibrated to deliver 500 L a.i. ha^{-1}. Plants were visually rated 1 (dead) to 10 (no damage) for phytotoxicity at weekly intervals after treatment. Spraying was repeated several times to cull the plants and select those with increased tolerance levels.

During 1989, putative resistant cell line selections were field-tested. Ten days after transplanting, each plant was sprayed with SU (43.86 or 86.54 g a.i. ha^{-1}) or water using a hand-operated plant mister. During the summer of 1990, seeds collected from 1989 tolerant lines from the highest treatment were surface sterilized, presoaked, and germinated in Pyrex dishes on 10^{-5} M SU selection media, and screened for tolerance. Tolerant plants were field tested with 0.0, 30.0, 60.0, and 100.0 g SU a.i. ha^{-1}. H401-4-4-2 was a selection with resistance to 100 g SU a.i. ha^{-1} with high fertility. At this concentration, Leo (control) plants were severely damaged and most plants did not survive. Seeds collected from H401-4-4-2 (from intercrossing with SU-tolerant plants) were tested in vitro for herbicide resistance by surface sterilizing the seeds, plating on four petri dishes (20 seeds per plate) containing 10 mL 10^{-5} M SU selection media with three replications and scored for trifoliate leaf development. After 3 wk growth, secondary leaf formation occurred on H401-4-4-2, but not on Leo (control) seedlings, indicating that the trait is heritable.

Seed may be obtained from Mr. R.B. McDougall. Recipients of seed are asked to make appropriate recognition of the source of the germplasm if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.

W. F. Grant* and R. B. McDougall (2)

References and Notes


Published in Crop Sci. 34:286–287 (1994).

Registration of C-32 Germplasm
of Cicer Milkvetch

The C-32 (Reg. no. GP-141, PI 578866) germplasm of cicer milkvetch (Cicer diestuctum (McCulloch) in an experimental chamber. The germplasm was selected from the cultivar Monarch in the laboratory at a temperature alternating between 5 and 20°C (12 h at each temperature).

Small quantities of seed (up to 25 g) will be provided to each applicant upon written request. We ask that recognition of its source be made a matter of open record when this germplasm contributes to the development of an improved cultivar. Requests should be sent to:

C. E. Townsend

References and Notes

1. Townsend, C.E. 1980. Registration of Monarch cicer milkvetch to 2,4-D (1 kg a.i. ha^{-1}) in an experimental chamber. Plants were in the three-leaf stage of development at time of spraying. Procedures for evaluating Cycles 1 through 5 were the same as those for Cycle 0. In each cycle of selection, 10 replicates (pots) of each polycross progeny and control arranged in a randomized complete block design.

There was no difference between the tolerant and susceptible plants in symptom development following herbicide treatment. The tolerant plants, however, recovered rapidly from the effects of the herbicide than did susceptible plants. Four to 5 wk after spraying, seedling regrowth from the apical meristem, i.e., extent of height (total length), were visually selected. Extent of height was considered the best measure of 2,4-D resistance. The apical meristem was the most terminal meristem remaining after herbicide application. Only a few seedlings died following herbicide treatment. The selected seedlings were transplanted into isolated crossing block in the field. During the year after establishment, the most vigorous plants were selected for the next cycle of selection. Polycross seeds were harvested in the year after establishment. Bumblebees (Bombus) are the principal pollinators.

Five cycles of recurrent selection for regrowth at the apical meristem following treatment with 2,4-D increased seedling height by 38% over that of Monarch.

An equal amount of polycross seed (by weight) from each of the 98 plants selected from Cycle 5 was used to produce C-32. Seed weight of the selected plants averaged 3.44 to 5.95 g 1000 seed^{-1}, with a mean of 4.41 g 1000 seed^{-1}. Seed weight of Monarch was 4.14 g 1000 seed^{-1}. About 92% on the fifth day following planting, compared to Monarch) in the laboratory at a temperature between 5 and 20°C (12 h at each temperature).

Small quantities of seed (up to 25 g) will be provided to each applicant upon written request. We ask that recognition of its source be made a matter of open record when this germplasm contributes to the development of an improved cultivar. Requests should be sent to:

C. E. Townsend

Published in Crop Sci. 34:287 (1994).