verity ranging from 25% at Ludhiana to 72% at Bhavanis-
agar. Rust resistance from ICML 11 is currently being trans-
ferred into male-sterile lines.
Seed stocks of ICML 11 will be maintained and distributed
by the International Crops Research Institute for the Semi-
Arid Tropics, Patancheru, P.O. A.P. 502 324, India.
S. D. SINGH, D. J. ANDREWS, AND K. N. RAJ (3)

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3. Miller pathologist, ICRI SAT, Patancheru, P.O. 502324, A.P. India; pro-
fessor, Dep. of Agronomy, Univ. of Nebraska, Lincoln, USA; and millet
breeder, ICRI SAT, Patancheru, respectively. Submitted as J.A. no. 559 by
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REGISTRATION OF FOUR GERMPLASM LINES OF
CICER MILKVETCH

Four germplasm lines of cicer milkvetch (Astragalus cicer
L.) (Reg. no. GP-66 to GP-69) were developed by the ARS-
USDA and the Colorado Agric. Exp. Stn. and released in
1986. They were selected for improved seedling emergence,
high seed weight, and improved forage yield.
C-10 (GP-66) and C-11 (GP-67) germplasms were devel-
oped by recurrent selection in progenies resulting from a
diallel cross (1). Six plants with excellent mature plant vigor and high seed weight were crossed in a diallel. Seed weight
of the six clones was one or more standard deviations above
the mean of a population composed of plant introductions
including PI's 66515, 133142, 206405, 246727, 263225, and
297335. Seed weight for individual plants of the diallel prog-
enies ranged from 3.20 to 5.00 mg with a mean of 3.99 mg.
Two subpopulations, C-10 and C-11, were developed in the
second cycle of recurrent selection (2). For C-10, a 20-clone
synthetic, selection pressure was high for mature plant vigor,
but was relaxed somewhat for seed weight. For C-11, an 18-
clone synthetic, the situation was reversed in that selection
pressure was high for seed weight, but was relaxed somewhat
for vigor. However, vigor of all parental clones was good.
Seed weight of the parental clones of C-10 ranged from 3.71
to 4.53 mg with a mean of 4.10 mg. Seed weight of the parental clones of C-11 ranged from 4.20 to 4.85 mg with a
mean of 4.43 mg. In comparison, seed weight of the cy.
Monarch, Lutana, and Oxley is 4.14, 3.64, and 3.52 mg,
respectively. Seedling emergence for the 38 polycross prog-
enies of C-10 and C-11 ranged from 91 to 125% of that of
a large-seeded reference lot (30 seedlings/m of row) with
a mean of 108%. In general, mature plant vigor of C-10 and
C-11 germplasms is greater than that of C-12 and C-13 germ-
plasms. Six clones from the two germplasms were selected
for inclusion as parents of Monarch because their polycross
progenies had superior seedling emergence and forage yield
(3).
C-12 (GP-68) and C-13 (GP-69) germplasms were devel-
oped by recurrent selection from the same source nursery as
C-10 and C-11 germplasms. Initially, 19 plants were selected
with average or above vigor and a seed weight that was also
one or more standard deviations above the mean. The six
parents used in the diallel were included. In the first cycle
of selection, seed weight of individual plants of the 19 po-
lycross progenies ranged from 2.97 to 5.40 mg with a mean of
3.97 mg (2). Two subpopulations, C-12 and C-13, were
developed in the second cycle of recurrent selection. The
selection pressures for seed weight and plant vigor that were
used to develop C-12, a 17-clone synthetic, and C-13, a 25-
clone synthetic, were identical to those used to develop C-
10 and C-11, respectively. Seed weight of the parental clones
of C-12 ranged from 4.02 to 4.80 mg with a mean of 4.40
mg. Seed weight of the parental clones of C-13 ranged from
4.51 to 5.40 mg with a mean of 4.73 mg. Seedling emergence
of the 42 polycross progenies of C-12 and C-13 ranged from
80 to 133% of that of the large-seeded reference lot with a
mean of 114%. Eleven clones from C-12 and C-13 were se-
lected for inclusion as parents of Monarch because their polycross
progenies had excellent seedling emergence in diverse
environments and generally yielded more forage than that
of the cultivar Lutana (3).
An equal amount of polycross seed (by weight) from each
parental clone within a germplasm was composited. Small
quantities of seed (up to 25 g) will be provided to each forage
crop researcher upon written request. It is asked that ap-
propriate recognition of its source be made a matter of open
record when these germplasms contribute to the develop-
ment of an improved cultivar of cicer milkvetch. Requests
should be sent to the Crops Research Laboratory-USDA-
ARS, Colorado State University, Fort Collins, CO 80523.

C. E. TOWNSEND (4)

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REGISTRATION OF NDSBF MAIZE GERMPLASM

The NDSBF (Reg. no. GP-151) is a yellow-dent endosperm
maize (Zea mays L.), synthetic released in 1986. It was de-
veloped by one cycle of full-sib family selection among 78
full-sib families between NDSBF(S)C, and NDSF(FS)C,
NDSBF(S)C, and NDSF(FS)C, were produced by one cycle
of reciprocal full-sib selection from NDSB (1) and NDSF
(2). The 78 full-sib families were evaluated in three envi-
ronments, and 20 superior families were identified with a
rank-summation index which was computed by summing
the ranks of each of four traits. This index weighted yield
40 and 20% each for low grain moisture, stalk lodging, and
root lodging percentages. These 20 families were intercrossed
by sib-matings and bulking seed. An additional generation
should be sent to the Crops Research Laboratory-USDA-
ARS, Colorado State University, Fort Collins, CO 80523.

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