

## LOTUS CORNICULATUS RESEARCH IN OHIO

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### Birdsfoot Trefoil Cultivar Evaluation

Forage yields were obtained for five cultivars at Columbus, Ohio (40° L N.) during the past three years. The study was established in May 1991 in a prepared seedbed with three replications of 5 X 20 feet plots. Three harvests were taken in 1992 and two harvests in 1993 and 1994. Due to differential weed populations, yields are presented as weed free dry matter for all harvests (Table 3).

Another field trial was seeded at the Northwestern Branch on 16 May 1991, also in a prepared seedbed using eight cultivars with four replications and 8 X 20 feet plots. Yields are presented as total dry matter since the plots were essentially weed free (Table 2).

Although the annual total weed free yield did not differ among the five cultivars at Columbus, the Georgia 1 cultivar produced the best total yield for 2 of the 3 years. Both Georgia 1 and AU Dewey flowered earlier at Columbus (Table 3) and Georgia 1 appeared to initiate spring growth earlier than the other cultivars. Although diseases have not been a major problem to date, Rhizoctonia has been observed in both the Norcen and Viking cultivars resulting in a somewhat lower stand density as of July 1994 (Table 1).

At the Northwestern Branch location (approximately 80 miles north of Columbus) a differential yield response among the eight cultivars is evident (Table 2). Dawn and Norcen are consistently the best yielders with Georgia 1 the lowest. AU Dewey and Empire were similar to Georgia 1. The initiation of spring growth appears to be delayed for Georgia 1 at this location, but flowering is earliest for both Georgia 1 and AU Dewey (Table 3). No major disease problems have been observed to date for this location.

### Other Studies in Progress

1. A field study is in progress at the Northwestern Branch to evaluate the long term performance of birdsfoot trefoil with and without cool season grasses for vegetative cover in Conservation Reserve Program areas.
2. A new field study was initiated at Columbus in 1994 to determine the effects of defoliation height and frequency on the production and persistence of Georgia 1 and Norcen cultivars.
3. A large scale field study was initiated in 1994 at the Jackson Branch (southern Ohio) to evaluate and compare the response of alfalfa, red clover and birdsfoot trefoil under a hay/pasture management system.

**Table 1: Birdsfoot Trefoil Cultivar Forage Yield at Columbus, Ohio, 1992-94.**

| Cultivar           | 1992   |       |        | 1993  |        |        | 1994  |       | 3 year mean | Stand Density Jul 1994 (%) |       |       |
|--------------------|--|-------|--------|-------|--------|--------|-------|-------|-------------|----------------------------|-------|-------|
|                    | 2 Jun  | 8 Jul | 24 Aug | Total | 17 Jun | 16 Jul | Total | 3 Jun |             |                            | 7 Jul | Total |
|                    | ----- (ton dry matter/acre, weed free) ----- |       |        |       |        |        |       |       |             |                            |       |       |
| AU Dewey           | 1.89   | 1.86  | 1.53   | 5.28  | 2.47   | 1.09   | 3.56  | 2.04  | 1.11        | 3.15                       | 4.00  | 87    |
| Georgia 1          | 1.91   | 1.87  | 1.93   | 5.71  | 2.49   | 1.06   | 3.55  | 2.49  | 1.05        | 3.54                       | 4.27  | 87    |
| Norcen             | 1.75   | 1.94  | 1.78   | 5.47  | 2.56   | 1.10   | 3.66  | 2.00  | 1.07        | 3.07                       | 4.07  | 77    |
| Viking             | 1.76   | 1.74  | 1.84   | 5.34  | 2.54   | 1.19   | 3.73  | 2.20  | 0.90        | 3.10                       | 4.06  | 70    |
| Empire             | 1.36   | 1.84  | 1.80   | 4.99  | 2.31   | 1.17   | 3.48  | 2.11  | 1.24        | 3.35                       | 3.94  | 88    |
| Mean               | 1.73   | 1.85  | 1.76   | 5.36  | 2.47   | 1.12   | 3.59  | 2.17  | 1.07        | 3.24                       | 4.06  | 82    |
| LSD <sub>.05</sub> | NS   | NS    | 0.30   | NS    | NS     | NS     | NS    | NS    | NS          | NS                         | --    | 15    |
| % CV               | 17   | 12    | 9      | 10    | 6      | 14     | 8     | 20    | 21          | 19                         | --    | 10    |

**Seeding date:** 8 May 1991

**Establishment:** Bandseeded at 6 lb/acre with 100 lb/a of 0-46-0.

**Fertilization:** Annual October application of 200 lb/a of K<sub>2</sub>O, P applied as required based on soil test.

**Pest control:** No herbicides applied; leafhopper control as needed.

**Table 2: Birdsfoot Trefoil Cultivar Forage Yield at Northwestern Branch, Custar, Ohio, 1992-94.**

| Cultivar           | 1992   |        | 1993  |        |        | 1994  |       |        | 3-Year mean |        |       |
|--------------------|--|--------|-------|--------|--------|-------|-------|--------|-------------|--------|-------|
|                    | 15 Jun                                       | 11 Aug | Total | 16 Jun | 14 Jul | Total | 8 Jun | 13 Jul |             | 30 Aug | Total |
|                    | ----- (ton dry matter/acre, weed free) ----- |        |       |        |        |       |       |        |             |        |       |
| AU Dewey           | 1.74   | 1.39   | 3.13  | 2.73   | 1.24   | 3.97  | 2.64  | 1.64   | 0.777       | 5.05   | 4.05  |
| Carroll            | 1.78   | 1.60   | 3.38  | 2.61   | 1.24   | 3.84  | 2.53  | 1.85   | 0.66        | 5.04   | 4.09  |
| Dawn               | 1.83   | 1.63   | 3.46  | 3.24   | 1.05   | 4.29  | 3.02  | 2.01   | 0.91        | 5.94   | 4.56  |
| Empire             | 1.37   | 1.45   | 2.83  | 2.81   | 1.13   | 3.94  | 2.37  | 1.59   | 0.71        | 4.67   | 3.81  |
| Fergus             | 1.83   | 1.57   | 3.40  | 3.14   | 1.07   | 4.20  | 2.83  | 1.69   | 0.84        | 5.36   | 4.32  |
| Georgia 1          | 0.85   | 1.20   | 2.05  | 2.23   | 1.03   | 3.26  | 2.15  | 1.54   | 0.71        | 4.40   | 3.24  |
| Norcen             | 2.00   | 1.69   | 3.69  | 3.19   | 1.11   | 4.30  | 2.72  | 2.09   | 0.82        | 5.62   | 4.54  |
| Viking             | 1.61   | 1.62   | 3.23  | 2.79   | 1.13   | 3.91  | 3.00  | 1.88   | 0.90        | 5.78   | 4.31  |
| Mean               | 1.62   | 1.52   | 3.15  | 2.84   | 1.12   | 3.96  | 2.66  | 1.79   | 0.79        | 5.23   | 4.11  |
| LSD <sub>.05</sub> | 0.62   | 0.41   | 0.94  | 0.43   | 0.20   | 0.52  | 0.46  | 0.33   | 0.18        | 0.88   | --    |
| % CV               | 26   | 18     | 20    | 10     | 12     | 9     | 12    | 13     | 16          | 11     | --    |

**Seeding date:** 16 May 1991

**Establishment:** Uniform application of 3 lb/a of EPTC incorporated prior to bandseeding of cultivars at 5 lb of inoculated seed/acre with 100 lb/a of 0-46-0

**Fertilization:** Annual October application of 150 lb/a of K<sub>2</sub>O and 50 lb/a of P<sub>2</sub>O<sub>5</sub>

**Table 3: Birdsfoot Trefoil Cultivar Maturity at First Harvest, 1992-94.**

| Cultivar  | Northwestern Branch     |      |      | Relative Rank* | Columbus                |      |      | Relative Rank* |
|-----------|-------------------------|------|------|----------------|-------------------------|------|------|----------------|
|           | 1992                    | 1993 | 1994 |                | 1992                    | 1993 | 1994 |                |
|           | -----(% flowering)----- |      |      |                | -----(% flowering)----- |      |      |                |
| AU Dewey  | 65                      | 40   | 68   | 1              | 30                      | 50   | 75   | 1              |
| Carroll   | <10                     | <10  | 20   | 8              | --                      | --   | --   | --             |
| Dawn      | 15                      | 10   | 30   | 6              | --                      | --   | --   | --             |
| Empire    | 30                      | 15   | 50   | 5              | 15                      | <10  | 25   | 4              |
| Fergus    | 50                      | 25   | 82   | 2              | --                      | --   | --   | --             |
| Georgia 1 | 60                      | 40   | 58   | 3              | 25                      | 35   | 60   | 2              |
| Norcen    | <10                     | 15   | 20   | 7              | <10                     | <10  | 12   | 5              |
| Viking    | 20                      | 20   | 70   | 4              | 15                      | 15   | 30   | 3              |

\*Relative rank: 1 = earliest