

Fall Harvest Effects on the Yield and Persistence of Birdsfoot

Trefoil (Lotus corniculatus L.)

R.S. Fulkerson

Crop Science Department, University of Guelph

Guelph, Ontario

The necessity of resting birdsfoot trefoil in the autumn in Ontario, to insure good persistence, is generally not known. Indeed, the common concept is that birdsfoot trefoil can survive and thrive under most grazing or cutting abuses. Farm evidence is accumulating, however, that indicates trefoil is subject to rather severe thinning over winter, particularly, where fall seed crops or early fall harvests are taken.

The studies reported here were initiated to investigate this problem. The research was conducted at the Crop Science Research Station at Elora, Ontario. The objective was to define the critical fall harvest date of some trefoil varieties through the application of timely fall cuttings.

Empire, Leo and Viking trefoil varieties, each differing somewhat in growth habit and maturity, were used. Two successive seedings were made, with each study being conducted over a period of four years.

The direct seeded varieties were harvested once in the seeding year and two or three times at the pasture stage in the succeeding years. One plot, of the seven plots per replicate, was cut each week during the autumn to establish the critical fall harvest date for each variety. In both studies, the varieties were cut for two successive autumns after which time the trefoil plants lacked vigor, and dandelion weed invasion following some harvests made further data collection of little value.

The three trefoil varieties responded to the fall cuttings in a similar manner. Harvesting about 7 September reduced succeeding yield and stand of all varieties to the lowest level. Where varieties were cut at the end of August,

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a week earlier than the critical date, or at the end of September after the traditional rest period, yields the following spring were increased in that order over the 7 September critical date harvest by 17 and 29, 40 and 45, 23 and 28 percent for Empire, Viking and Leo varieties, respectively. This emphasizes the necessity of a fall rest period, and further indicates that Viking is less tolerant to fall harvest abuse than the other trefoil varieties studied.

In addition to the yield reductions, fall harvests lowered the plant stand of all varieties. On the average, the number of plants from the 7 September harvest was only 65% of the uncut check, and strikingly inferior to earlier or later harvests.

It is evident from these studies that the critical fall harvest date for birdsfoot trefoil at the Elora Research Station is about 7 September. This date is about 10 days earlier than similar critical date responses obtained in several studies at Elora with alfalfa. The critical date has been determined for alfalfa throughout Ontario. From farm observations and the trefoil data presented, it is postulated that a similar earlier date to that obtained here would apply to trefoil in all areas of the province.

Fall cut date effects on the succeeding yield of dry matter (kg/ha) and plant stand (m²) of three birdsfoot trefoil varieties average over two studies

Fall cut date	Empire		Viking		Leo		Mean		
	cut l	plants	cut l	plants	cut l	plants	cut l	total	plants
30 Aug.	2708b	67bc	2204bcd	97a	2412bcd	72ab	2443	4971	78
7 Sept.	2310c	50d	1579d	63a	2088d	66bc	1991	4468	59
14 Sept.	2528bc	56cd	1852cd	74bc	2172cd	69bc	2185	4690	67
21 Sept.	2583bc	67bc	1981bcd	98a	2276bcd	78ab	2282	4940	81
28 Sept.	2985b	71bc	2299bc	88ab	2345bcd	85a	2543	5289	80
5 Oct.	3515a	82b	2550ab	96a	2772ab	81ab	2944	5780	86
Uncut	3545a	97a	3012a	98a	3045a	78ab	3202	6700	91