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EFFECT OF STAGE AND INTENSITY OF DEFOLIATION ON THE GROWTH OF COWPEA

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Dairy and beef producers have shown increasing interest in the use of cowpeas for grazing, for hay, as a component of silage mixtures, and as a pioneer legume in land development systems (Fox 1960; Onley 1961; Graham 1963; Henderson 1963.) As little experimental evidence is available to suggest the best system of utilization by the grazing animal, some preliminary studies were carried out at "Brian Pastures" Pasture Research Station, near Gayndah, to examine the effect of stage and intensity of defoliation on the growth of the variety Havana (*Vigna sinensis* (L.) Endl. ex Hassk. cv. Havana).

Stage of Defoliation

A 6 x 3 randomized block experiment was sown on October 1, 1963, in 12·5 gal drums filled with a basaltic-derived brown clay soil of moderate fertility. The soil was allowed to settle in the drums for 10 days prior to sowing. Plant density was reduced to two plants per drum.

The treatments were:

(1) Cut 56 days after sowing; buds still vegetative.
(2) Cut at flowering, both plants of the treatment showing open flowers; 71 days after sowing.
(3) Cut at post-flowering; 85 days after sowing.

These initial cuts were made 1 cm below the first pair of leaves on the main stem. i.e. two buds remaining. The regrowth harvest was taken six weeks after the mean of the initial harvest dates.

The results are set out in Table 1. They show that for the severe defoliation intensity employed it is necessary to delay defoliation until the flowering stage.

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TABLE 1

STAGE OF DEFOLIATION: YIELD OF OVEN-DRIED MATERIAL (g/plant)

Stage of Cut		Initial Harvest	Regrowth Harvest
Preflowering		20·37	*
Flowering		49·62	16·12
Post-flowering		54·75	9·33
Necessary differences for significance	5%	9·54	3·94
	1%	13·57	6·17

* 75% mortality. Result not included in analysis.

Intensity of Defoliation

This experiment was sown on January 1, 1964, as a 5 x 4 randomized block with experimental procedures similar to those described for the stage of defoliation experiment.

The treatments were:

(1) Two buds remaining for regrowth.
(2) Four buds remaining for regrowth.
(3) Six buds remaining for regrowth.
(4) Eight buds remaining for regrowth.

The initial cut was applied at flowering stage on March 13, 1964. All growth was removed above the designated buds. Regrowth from the buds was harvested on April 24, 1964.

The results shown in Table 2 indicate that highest regrowth yields were recorded in the moderately defoliated treatments.

TABLE 2

INTENSITY OF DEFOLIATION: YIELD OF OVEN-DRIED MATERIAL (g/plant)

No. of Buds After Defoliation		Regrowth
2		25·00
4		35·05
6		33·90
8		28·35
Necessary differences for significance	5%	5·55
	1%	7·78

Comment

The dangers of extrapolating conclusions from controlled pot experiments to field practice are real but the data suggest that the grazing or cutting management of the cowpea crop can be flexible provided defoliation is not carried out before flowering and is not too severe.

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