# Weed Management

Page 1.5 Top Table 1.

Effect of grinding on alfalfa, spotted knapweed, and sulfur cinquefoil seeds: Recovery of intact seeds and effects on germination after grinding in a hammer mill to pass through a given screen size. (Adapted from Zamora, D.L. and J. P. Olivarez. 1994. The viability of seeds in feed pellets. Weed Technol. 8:148-153)

| Screen size | Alfalfa | | | | Spotted knapweed | | Sulfur cinquefoil | |
|---|---|---|---|---|---|---|---|---|
| | Recovered | Germ. | Hard seed | Viable | Recovered | Germ. | Recovered | Germ. |
| mm | ---------- | ---------- | ---------- | %---------- | ---------- | ---------- | ---------- | ---------- |
| Seed not ground | ---- | 87 | 6.8 | 94 | ---- | 87 | ---- | 87 |
| 1 | 0.2 | 75 | 0.0 | 75 | 0.3 | 74 | 0.4 | 0.0 |
| 2 | 0.4 | 85 | 0.3 | 86 | 0.6 | 73 | 5.3 | 2.5 |
| 3 | 0.6 | 89 | 0.3 | 90 | 1.2 | 69 | 7.9 | 3.7 |
| LSD (0.05) | 0.2 | NS | 1.5 | 13 | 0.5 | 12 | 2.6 | 3.9 |

Germination of weed seeds after digestion by cattle and 3 months of storage in manure

| Weed species | Germ. before feeding | Germ. after 47 h digestion | Germ. after 97 h digestion | Germ. after 47 h digestion + manure storage | Total decrease after digestion + storage |
|---|---|---|---|---|---|
| | ----------%---------- | | | | |
| Redroot pigweed | 98 | 36 | 3 | 12 | 88 |
| Curled dock | 95 | 58 | -- | 3 | 97 |
| Common lambsquarters | 70 | 58 | -- | 22 | 69 |
| Alfalfa | 86 | 17 | -- | 80 | 7 |
| Green foxtail | 21 | 20 | -- | 0 | 100 |
| Wild oat | 74 | 10 | -- | 0 | 100 |
| Russian thistle | 18 | 0.5 | -- | 0 | 100 |

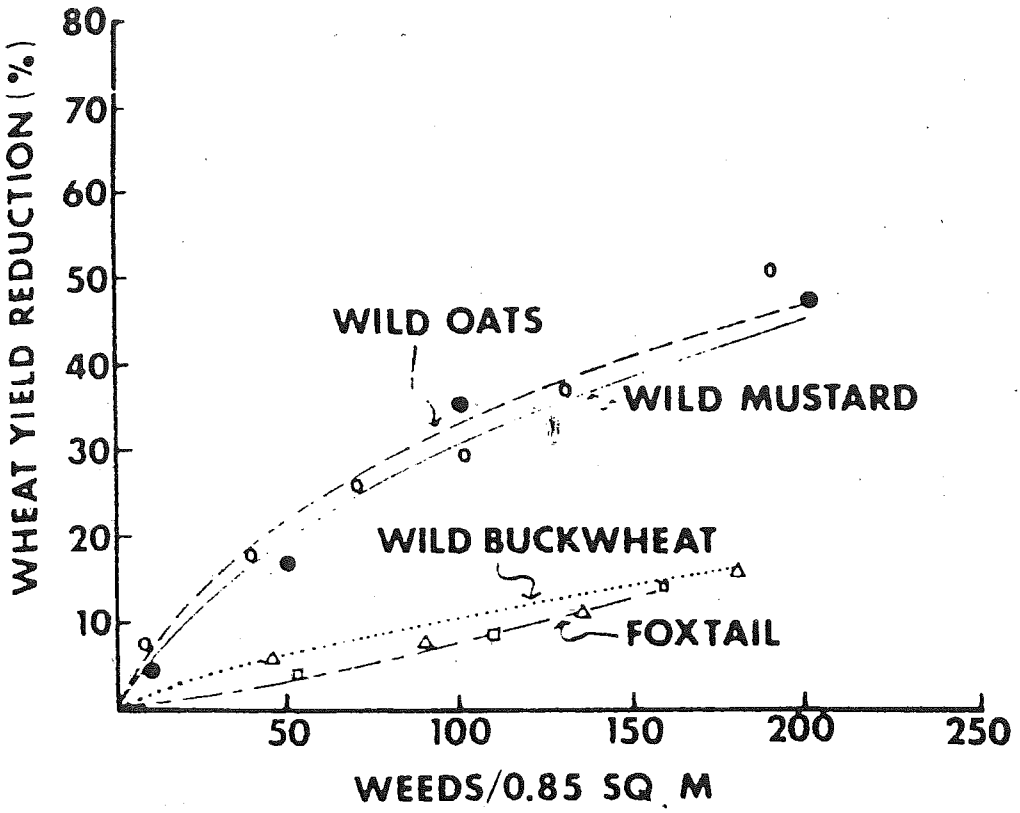
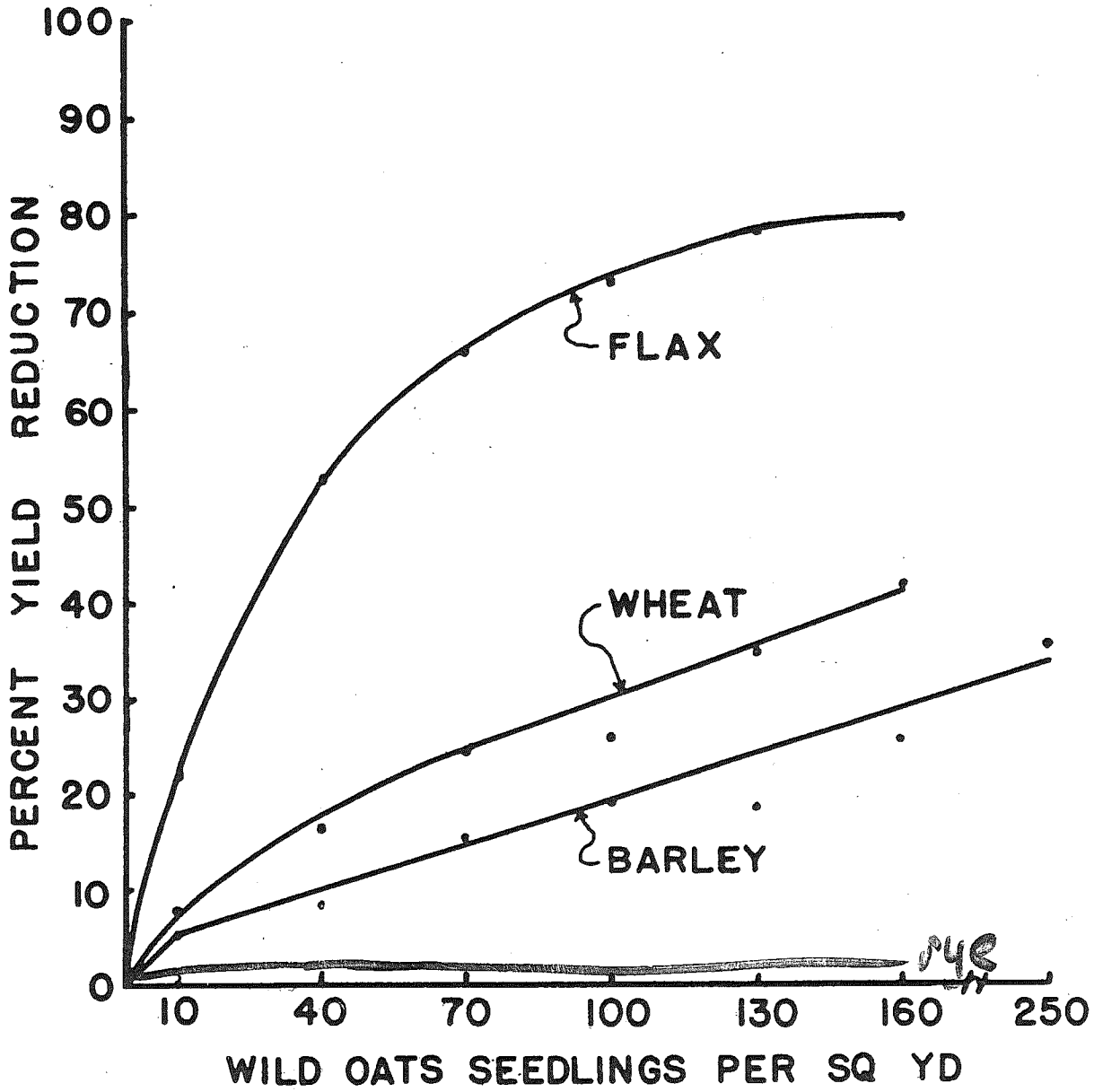



Fig. 1—The influence of wild oats (3, 7), wild mustard (49), wild buckwheat (36), and yellow foxtail (25) at various densities upon wheat yield.

dependent also on environment

Rep 1.12 Top figure

P. 11 (figure at bottom of page)



**a.** Alternating row and solid seeded crops

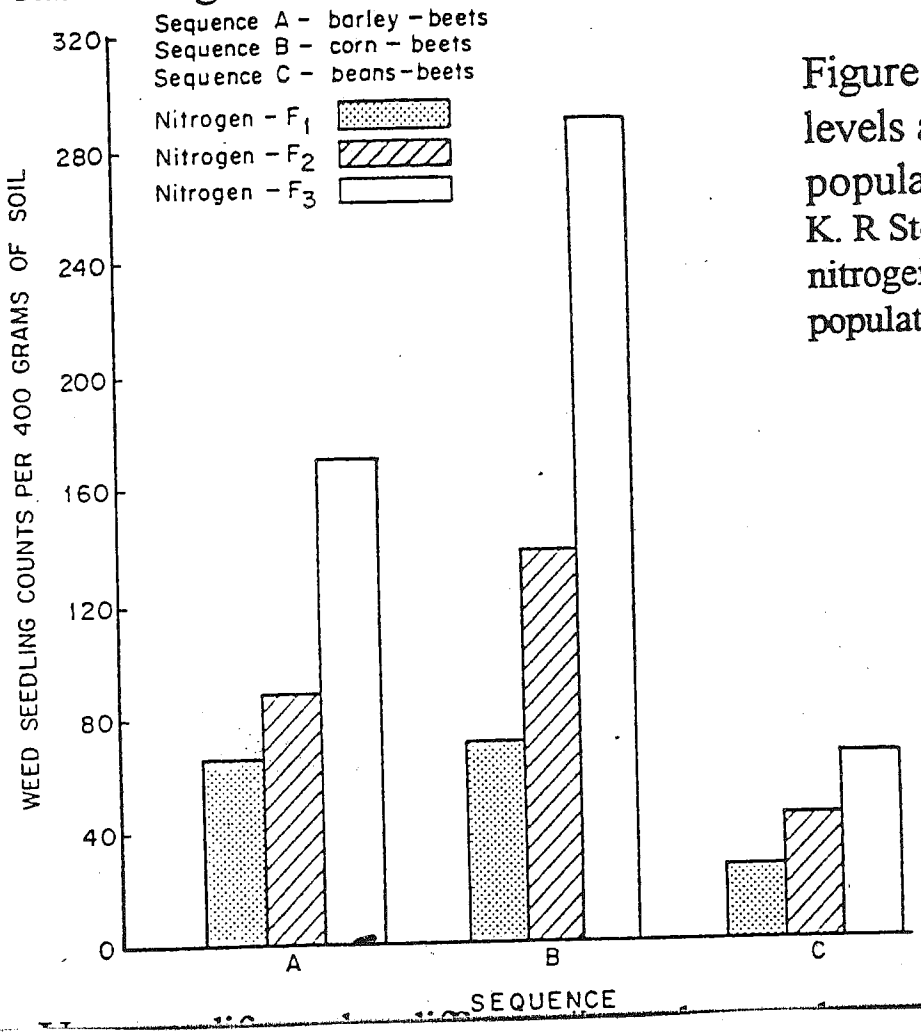



Figure: Relationship of nitr levels and crop sequence to population (from Dotzenko, A K. R Storer. 1969. Influence of nitrogen fertilizer and herbicide populations in sugar beet fields.

Pag 112 Data for bottom figure

Table 5. Soybean seed yield and growth of wild mustard and soybean as affected by various intervals of wild mustard emergence at Fargo.

| Wild mustard emergence relative to soybeans | Soybean seed | | Fresh weight, 1969 | | Dry weight, 1970 | |
|---|---|---|---|---|---|---|
| | Yield | % | Soybeans | Wild mustard | Soybeans | Wild mustard |
| | (lb/A) | (%) | (lb/A) | | | |
| 8 days before | 123c[a] | 89 | 757d | 9470a | 363b | 2853a |
| 4 days before | 232c | 80 | 936d | 12246a | 412b | 2205b |
| Same day | 655b | 43 | 7142c | 2235b | 367a | 1129c |
| 4 days after | 1007a | 12 | 9362bc | 1193b | 1420a | 846cd |
| 8 days after | 1013a | 11 | 10420ab | 1041b | 1797a | 575d |
| Weed free | 1143a | 0 | 12641a | 0 | 2220a | 0 |

[a] Values followed by the same letter within each column do not differ at the 5% level according to Duncan's multiple range test.

Page 1.12 Data for middle figure

Table 4. Soybean seed yield as affected by removal of wild mustard at various weeks after soybean emergence at Fargo, averaged over 1969 and 1970 data.

| Weeks of removal | Soybean seed yield | Yield reduction |
|---|---|---|
| | (bu/A) | (%) |
| Weed free | 18.80a[a] | 0 |
| 1 | 19.10a | 0 |
| 2 | 18.89a | 0 |
| 3 | 16.88ab | 10 |
| 4 | 14.19bc | 24 |
| 5 | 11.06c | 41 |
| 6 | 7.55d | 60 |
| 8 | 6.85d | 64 |
| 10 | 7.23d | 62 |
| 12 | 6.97d | 63 |

[a] Values followed by the same letter within each column do not differ at the 5% level according to Duncan's multiple range test.

Fig. 2.7.

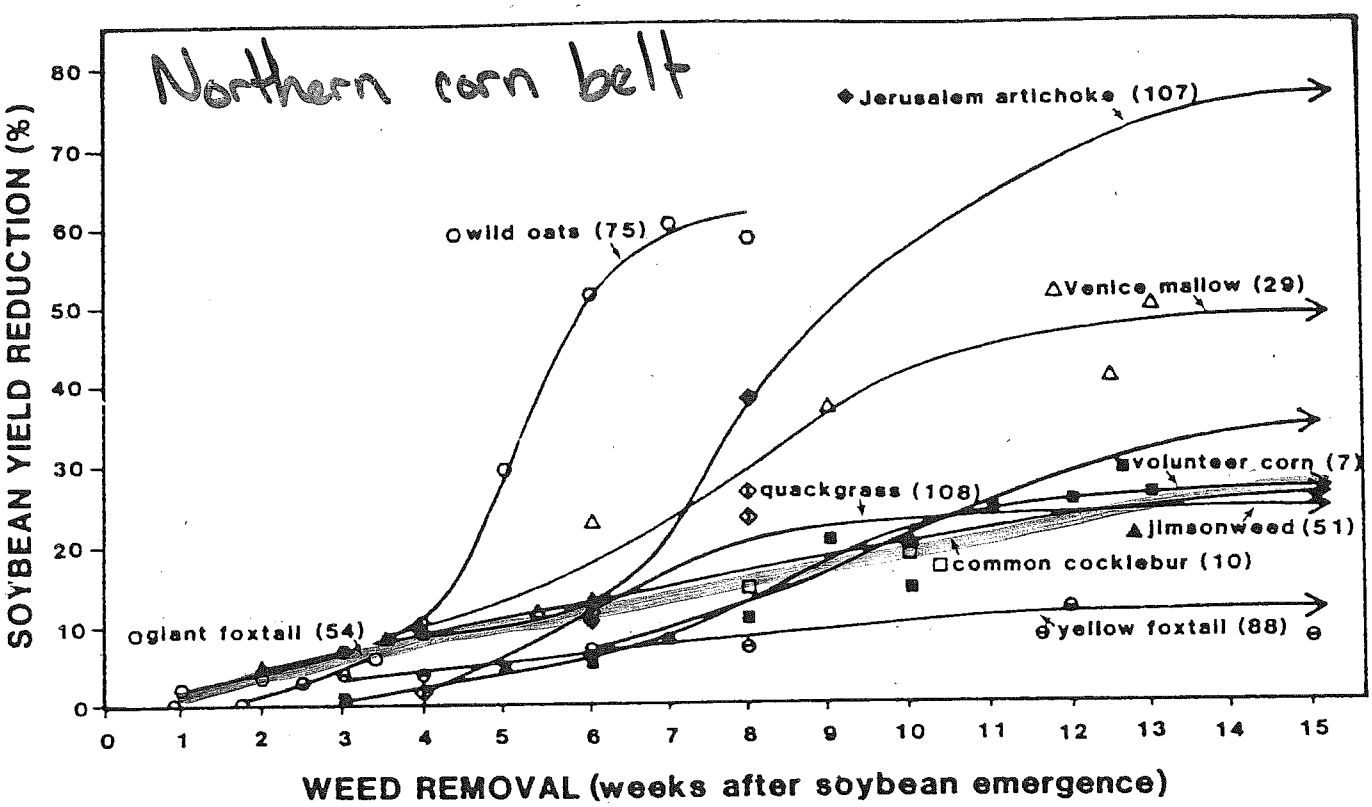



*Figure 7.* A summary of soybean yield reductions resulting from weed interference when the weeds and soybeans emerged concurrently, with subsequent weed removal (usually physical removal) at the various times after soybean emergence for weeds common to 'Northern (Corn Belt)' production areas. Weed density varies among species but is constant for each species. The symbol preceding the weed name identifies which symbol represents the actual data points for that species, but that one individual symbol does not represent actual data. The number in parentheses following the species name refers to the reference from which the data for that species were obtained. An arrow at the end of the curve indicates that the curve was constructed utilizing data beyond the time shown. Additional data not suitable for plotting here are available for yellow foxtail (85), Pennsylvania smartweed (88), velvetleaf (88), and mixed species (48).

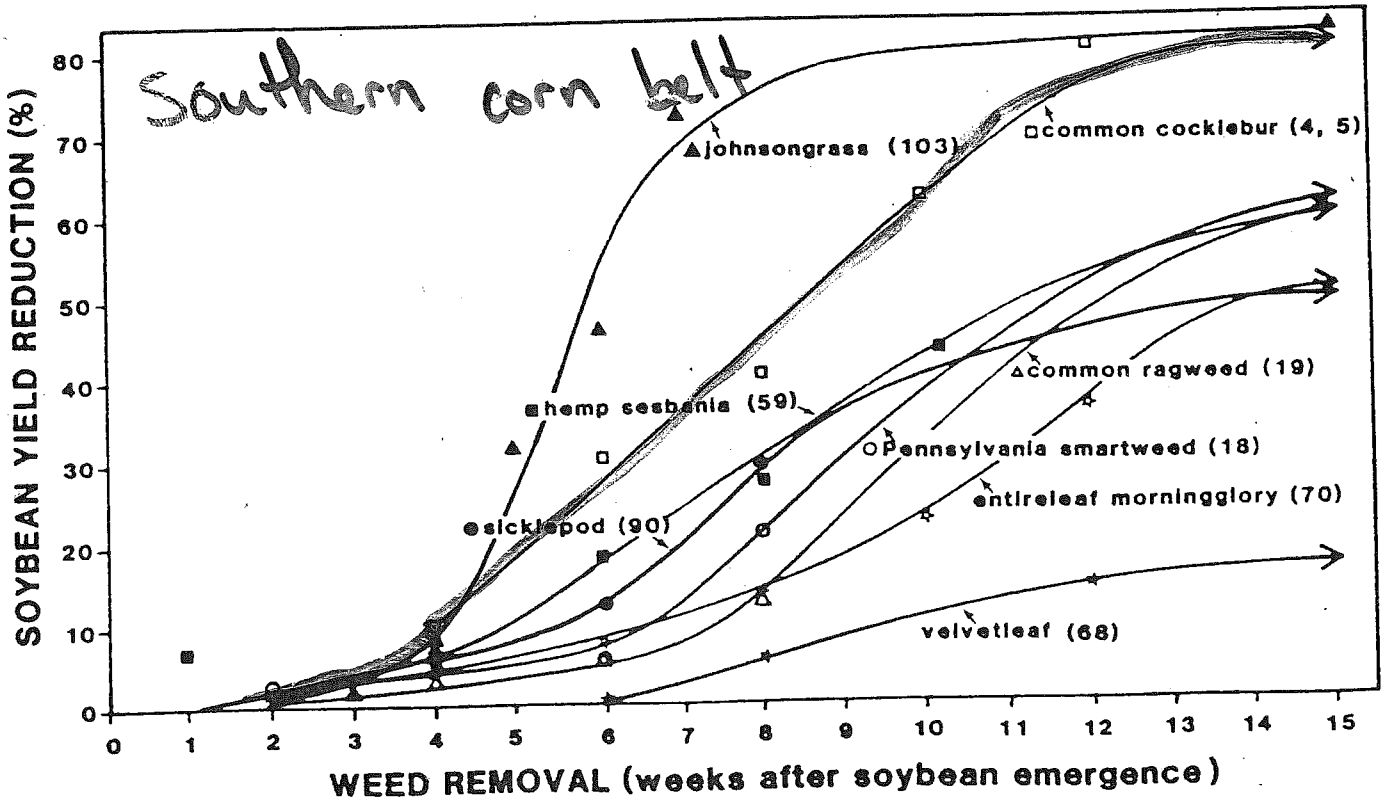



*Figure 8.* A summary of soybean yield reductions resulting from weed interference when the weeds and soybeans emerged concurrently, with subsequent weed removal (usually physical removal) at the various times after soybean emergence for

## Effect of Weeding Frequency and Ground Cover on Weed Competition Maize Yield (IITA, 1980)

| | Unweeded check[a] | |
|---|---|---|
| Ground cover | Weed dry weight (T/ha) | Grain yield |
| Conventional tillage | 1.5 a | 1.1 e |
| No tillage | 1.4 a | 1.8 b |
| Maize stover | 1.3 a | 1.6 c |
| Maize and groundnut | 0.3 c | 1.3 d |
| Maize and wild winged bean | 0.1 c | 2.1 a |

[a]Values in one column followed by the same letter are not statistically different at t level of probability.

Broomrape and tomato yield after various treatments (adapted from Abu-Irmaileh, B. E. 1991. Soil solarization controls broomrapes (*Orobanche* spp.) in host vegetable crops in the Jordan Valley. Weed Technol. 5:575-581).

| Treatment | Tomato yield | Broomrape dry weight |
|---|---|---|
| | kg/ha | g/m$^2$ |
| Solarized w/ clear plastic | 12,130 | 0 |
| Solarized/clear plastic + handweeding | 27,120 | 0 |
| Solarized/clear plastic + hoed | 25,740 | 0 |
| Solarized/clear plastic + black plastic mulch | 40,030 | 0.8 |
| Handweeding | 10,050 | 0.8 |
| Surface hoeing | 9,910 | 3.8 |
| Black plastic mulch | 19,680 | 1.9 |
| Check | 1,805 | 4.4 |

1.18

**Cultivations required to eradicate field bindweed in northwestern Kansas as affected by frequency of cultivations, 1936-43**

| Cultivation after emergence | Interval between cultivations first year | Cultivations required for eradication | Crop seasons required for eradication |
|---|---|---|---|
| ---days--- | ---days--- | ---no.--- | ---no.--- |
| 0 | 8.3 | 32.3 | 1.8 |
| 4 | 12.3 | 23.2 | 1.7 |
| 8 | 16.7 | 19.2 | 1.8 |
| 12 | 20.8 | 16.2 | 1.9 |
| 16 | 25.2 | 16.1 | 2.2 |
| 20 | 28.2 | 21.9 | 3.4 |
| 28 | 37.0 | 23.4 | 3.7 |

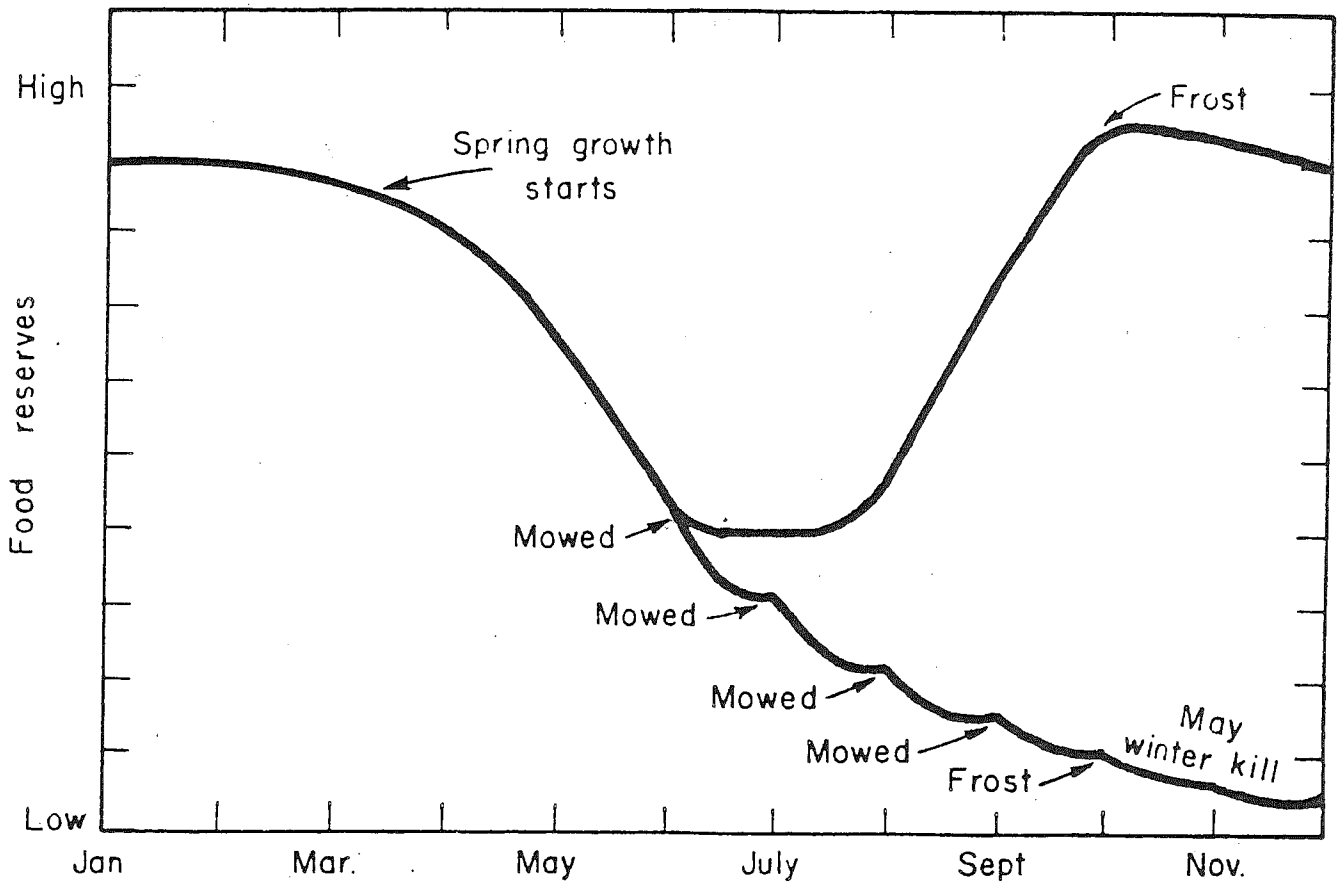



FIGURE 3. **EFFECT OF MOWING ON ROOT RESERVES**