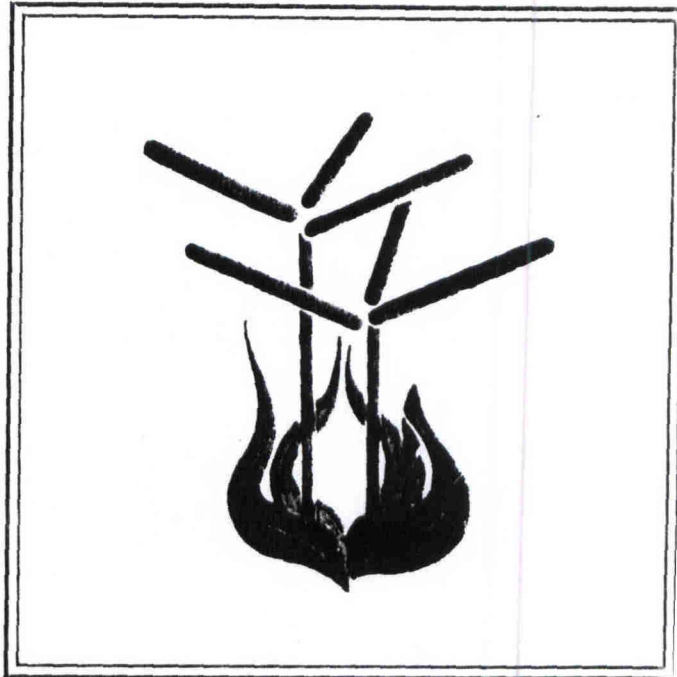
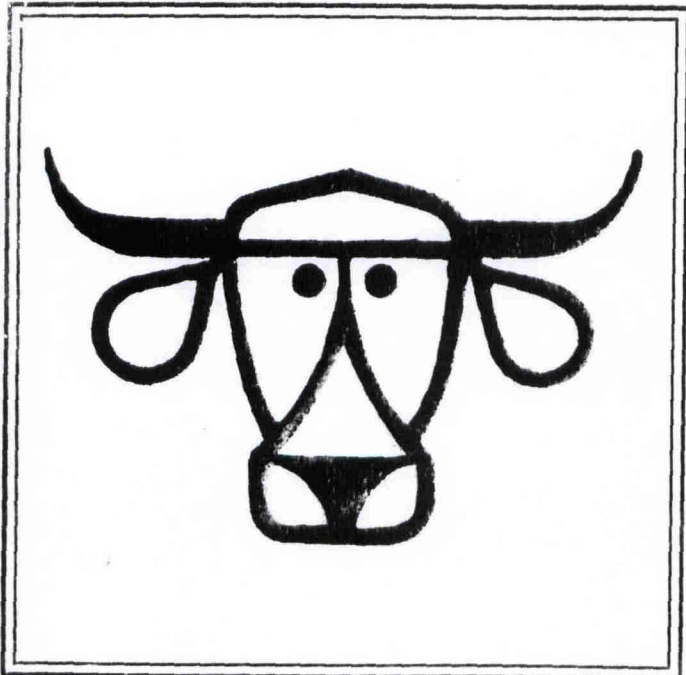
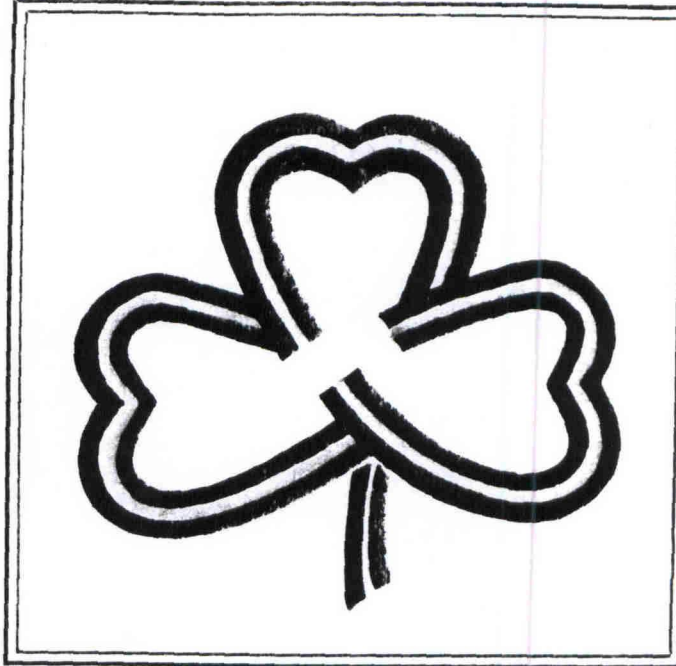


# **PUBLICATIONS**

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# Forage Research in Texas

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(EFFECT OF) NITROGEN ON SUBCLOVER NODULATION  
AND SEEDLING GROWTH

OBJECTIVE:

To determine the effect of nitrogen at planting on nodulation and seedling growth of subclover grown in pure stands and ryegrass mixtures.

PROCEDURE:

Mt. Barker subclover was planted in pure stands (20 lb/ac) and with ryegrass (subclover 15 lb/ac, ryegrass 20 lb/ac) in a prepared seedbed on a Lake Charles clay on October 5, 1978. Rainfall to initiate germination did not occur until November 5. Sixty lbs  $P_2O_5$  was applied at planting. Experimental design was split plot with pure clover and clover-ryegrass mixtures as major plots and 0, 25, 50 and 100 lb N/ac at planting as subplots. Ten clover seedlings were removed from each plot on Dec. 11 approximately 5 weeks after emergence. Number of nodules and leaves per seedling were determined after which the seedlings were dried for 48 hrs at 70°C to determine seedling dry weight.

RESULTS AND DISCUSSION:

As nitrogen rate increased, nodules/seedling decreased in pure clover stands (Table 1). Seedling weight increased slight as nitrogen rate increased. As the soil nitrogen level increased, subclover seedlings obtained more of their nitrogen from the soil and less from the atmosphere although there was no increase in leaf number and only a slight increase in weight.

There was not a decrease in nodule number in the subclover-ryegrass mixture as nitrogen increased until 100 lbs N/ac was applied. It appears the ryegrass used sufficient amounts of the applied nitrogen to prevent the nitrogen from interfering with nodulation until the 100 lb N/ac rate. Seedling weight increased slightly but consistently with increasing N rate. There was a distinct difference in leaf number and seedling weight between clover grown in a pure stand and with ryegrass for each N rate. The lower values for clover grown with ryegrass demonstrates that clover performance is affected more by grass competition than N fertilizer. These data indicate that up to 50 lb N/ac can be applied to a subclover-ryegrass mixture without reducing nodulation. The 4 week period between planting and emergence because of insufficient moisture may have reduced the effect of N fertilizer on clover.

TABLE 1

THE EFFECT OF NITROGEN FERTILIZER AT PLANTING AND RYEGRASS  
COMPETITION ON NODULE AND LEAF NUMBER AND WEIGHT OF  
SUBTERRANEAN CLOVER SEEDLINGS 5 WEEKS AFTER EMERGENCE

	Nitrogen at planting (lb/ac)			
	0	25	50	100
	subclover alone			
nodule number	16.1	13.4	11.5	8.6
leaf number	5.4	5.0	5.4	5.2
weigh (mg)	73	77	81	80
	subclover-ryegrass mixture			
nodule number	14.9	14.8	15.0	11.7
leaf number	4.5	4.5	4.9	4.9
weigh (mg)	57	61	64	65