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## Residual values of different molybdenum sources

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2. RESIDUAL VALUES OF DIFFERENT MOLYBDENUM SOURCES  
84Me10/1213 EX

Aim: To examine the declines in effectiveness of different sources of molybdenum.

Location: R. McAndrew, Yelbeni

Soil: Yellow-brown sandy earth  
pH (0 - 10 cm) - 5.2 (water) / 4.5 (CaCl<sub>2</sub>)  
(10 - 30 cm) - 4.9 (water) / 4.3 (CaCl<sub>2</sub>)

Results: Sown - May 15  
- Superphosphate at 200 kg/ha  
- Agran 34 at 95 kg/ha

Harvested - November 7

Table 2. Effect of source of molybdenum, liming and time of molybdenum application on the grain yield of wheat and on the concentration of molybdenum in YEB

Source of molybdenum	Limestone (t/ha)	Year of application	Grain yield (t/ha)	YEB Mo concentration (ng/g)
Nil	-		0.96	110
	2	'84	1.02	450
Na <sub>2</sub> MoO <sub>4</sub> (92)	-	'84	0.82	130
	2	'84	1.04	710
	-	'85	0.86	220
	-	'87	0.96	370
	2	'87	0.95	370
Na <sub>2</sub> MoO <sub>4</sub> (1200)	-	'84	0.89	430
	2	'84	0.98	1900
MoS <sub>2</sub> (1200)	-	'84	0.98	110
	2	'84	1.09	490
Na <sub>2</sub> MoO <sub>4</sub> (92) in:				
Fine limestone granules	0.2	'84	0.99	210
Coarse limestone granules	0.2	'84	0.88	260

( ) is g Mo/ha

Na<sub>2</sub>MoO<sub>4</sub> is sodium molybdate (40% Mo)

MoS<sub>2</sub> is molybdenite, the primary insoluble mineral (60% Mo)

Fine limestone granules are 2-6 mm granules of fine limestone (99% CaCO<sub>3</sub>) pellettized with 6% soda carb, and incorporating 460 ppm molybdenum as sodium molybdate - drilled at 200 kg/ha.

Coarse limestone granules are 2-5 mm granules sieved from raw limestone (76%  $\text{CaCO}_3$ ) which were sprayed with a solution of sodium molybdate to give 460 ppm molybdenum - drilled at 200 kg/ha.

YEB sampled August 8, Zadoks 22/53 - in boot.

#### Results:

Results of analyses of plant tissues for concentrations of molybdenum have yet to be completed. Preliminary results indicate:

1. There was no response in grain yield to the application of molybdenum (in various forms) or limestone.
2. The addition of limestone at 2 t/ha increased the effectiveness of both native and applied molybdenum to the wheat plants - as assessed by concentrations of molybdenum in the YEB.
3. The concentration of molybdenum in the YEB of wheat grown on plots that had not received molybdenum was above the critical concentration of 50-70 mg/g.
4. Concentrations of molybdenum in the YEB indicate that the effectiveness of soil applied  $\text{Na}_2\text{MoO}_4$  to wheat declines rapidly with time.
5.  $\text{MoS}_2$  appears a highly ineffective source of molybdenum to wheat.
6. The effectiveness of  $\text{Na}_2\text{MoO}_4$  to wheat is increased when applied to the soil in granules of limestone.