

## Efficacy of Ammonium sulphate top dressing in split doses \*

by

S. MANAMOHAN LAL<sup>1</sup> and R. B. SURENDRANATH NAIDU<sup>2</sup>

**Synopsis:** Application of ammonium sulphate in two doses was better than application in a single dose or in three doses, in the case of *Kuruvai* and *Thaladi* crops. In the case of *Samba* crop application of full quantity in a single dose recorded the maximum yield.

**Introduction:** Ammonium sulphate is usually applied as a top dressing for paddy after the crop has established itself well in the transplanted field. Being a soluble and quick acting fertiliser, it must be applied at a time when the benefit of the fertiliser will be the maximum.

**Previous work:** From 1931-'34 experiments have been conducted at Aduthurai, Coimbatore, Maruteru and Pattambi to fix the optimum time of application of ammonium sulphate. At Aduthurai, the application of ammonium sulphate in a single dose, two months after planting recorded the maximum yield in all the three years. At Coimbatore in the first and second year there was no difference in the yield between single dose and split doses; in the third year, the maximum yield was recorded from the plots which received the full quantity of ammonium sulphate in a single dose six weeks after planting. At Maruteru no valid conclusions could be drawn in the first and third years of trials whereas in the second year the application of fertiliser in a single dose one month after planting gave the best yield. At Pattambi the results of the experiments were vitiated by insect pests in the first and second years while in the third year a single dose, a month after planting was most advantageous.

At the Central Rice Research Institute, Cuttack, the results obtained so far indicate that the application of ammonium sulphate in three split doses, at planting, a month after planting and two or three weeks before flowering is more advantageous than the application of the entire quantity in a single dose.

**Materials and Methods:** With the above background and also taking a suggestion from the Chinese Delegation, an experiment was started at the Agricultural Research Station, Aduthurai in 1958-'59 to note the differences, if any, between the application of ammonium sulphate in a single dose and two or three split doses. The experiment was conducted in all the three seasons of the year viz, *Kuruvai*, *Samba* and *Thaladi* and repeated in the

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<sup>1</sup> & <sup>2</sup> Research Assistants, Agricultural Research Station, Aduthurai.

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following two years. Strain ADT. 3 was used for the *Kuruvai* season and Co. 25 for *Samba* and *Thaladi* seasons. The following five treatments, all to supply 30 pounds of Nitrogen in the form of ammonium sulphate were compared.

1. Full quantity in a single dose 30 days (*Kuruvai*) or 60 days (*Samba* and *Thaladi*) after planting.
2. Full quantity in two doses, half at planting and half 30 days (*Kuruvai*) or 60 days (*Samba* and *Thaladi*) after planting
3. Full quantity in two doses, half at planting and the other half a week before flowering.
4. Full quantity in three doses, one third at planting, one third 15 days (*Kuruvai*) or 30 days (*Samba* and *Thaladi*) after planting and one third a month (*Kuruvai*) or two months (*Samba* and *Thaladi*) after planting.
5. Full quantity in three doses, one third at planting, one third 30 days (*Kuruvai*) or 60 days (*Samba* and *Thaladi*) after planting and one third a week before flowering.

Results: The mean acre yields recorded during the three different seasons in all the three years for each treatment are given in the table. Though the treatment differences were not statistically significant, there is an indication that application of ammonium sulphate in three equal doses is not advantageous.

Conclusion: To get better yields during *Kuruvai* and *Thaladi* seasons ammonium sulphate has to be applied in two equal doses, one half at the time of planting and the other half 30 days or 60 day after planting for *Kuruvai* and *Thaladi* crops respectively. For *Samba* crop maximum yield can be obtained if ammonium sulphate is applied in one single dose, 60 days after planting.

TABLE

Treatments	Years	Mean acre yield in pounds			Yield expressed as per cent on control		
		<i>Kuruvai</i>	<i>Samba</i>	<i>Thaladi</i>	<i>Kuruvai</i>	<i>Samba</i>	<i>Thaladi</i>
1. 30 lb. N in a single dose 30 days ( <i>Kuruvai</i> ) or 60 days ( <i>Samba</i> and <i>Thaladi</i> ) after planting (Control).	1958-59	2492	3397	3072	100.0	100.0	100.0
	1959-60	2634	4315	2799	100.0	100.0	100.0
	1960-61	2924	3517	3253	100.0	100.0	100.0

TABLE (Contd.)

Treatments	Years	Mean acre yield in pounds			Yield expressed as percent on control		
		Kuruvai	Samba	Thaladi	Kuruvai	Samba	Thaladi
2. 30 lb. N in two doses half at planting and half 30 days ( <i>Kuruvai</i> ) or 60 days ( <i>Samba</i> and <i>Thaladi</i> ) after planting.	1958-59	2596	3311	3152	101.7	97.5	102.6
	1959-60	2934	4120	2777	111.4	95.8	99.2
	1960-61	3047	3691	3502	104.2	101.8	107.6
3. 30 lb. N in two doses half at planting, half a week before flowering.	1958-59	2552	3269	3171	102.4	96.2	103.2
	1959-60	2997	4068	2758	112.8	94.8	98.6
	1960-61	2978	3467	3330	101.8	98.5	102.3
4. 30 lb. N in 3 doses, one third at planting, one third 15 days ( <i>Kuruvai</i> ) or a month ( <i>Samba</i> and <i>Thaladi</i> ) after planting and one third a month ( <i>Kuruvai</i> ) or 2 months ( <i>Samba</i> and <i>Thaladi</i> ) after planting.	1958-59	2542	3388	3081	102.9	99.7	100.3
	1959-60	2955	4058	2681	112.1	94.0	95.8
	1960-61	3009	3392	2661	102.9	96.4	110.7
5. 30 lb. N in 3 doses, one third at planting, one third 30 days ( <i>Kuruvai</i> ) or 60 days ( <i>Samba</i> and <i>Thaladi</i> ) after planting and one third a week before flowering.	1958-59	2498	3311	3042	100.2	97.5	99.0
	1959-60	2955	4079	2758	112.1	94.5	98.6
	1960-61	3029	3348	3537	103.6	95.1	108.4
"F" Test	1958-59	Not Satisfied			Not Satisfied		
	1959-60	Not Satisfied			Not Satisfied		
	1960-61	Not Satisfied			Not Satisfied		
Standard Error	1958-59	81	81	100	3.26	2.37	3.52
	1959-60	244	99	78	9.27	2.30	2.80
	1960-61	61	165	156	2.10	4.10	4.80