Proper INM enhances kachri yield

Under hot arid agroclimate where soil is low in organic matter and available plant nutrients are of great importance in increasing yield by the balanced plant nutrients supply. The combined application of 50% recommended dose of NPK (40 kg N + 20 kg of P₂O₂ + 20 K₂O) along with 15 t/ha FYM (in channel or in line where seed is grown) give higher yield (113.08 q/ha). Besides more yield, this combination also showed increasing efficiency, net return and B:C ratio. At this proportion inorganic sources maintained the availability of nutrients at a rate at which crop did not suffer stress. At the same time organic sources maintained the balance nutrition to crop for a longer duration. This proportion also favoured mineralization of organic source at desirable rate to maintain supply of nutrients to kachri crop.

particularly in hot arid region of north-western particularly in hot arid region of north-western of Rajasthan, suitable crop-plant species from setables are of vital importance. The native crops have kachri support livelihood in the hostile situations, here vegetable crop diversification is not much asible. However, limited attention was paid for its horizont management and other crop production aspects. The requires hot and dry climate and a long growing requires hot and dry climate and a long growing as on preferably with warmer days for cultivation both rainy and summer season crop. The high temperature and dryness conditions are beneficial for crop, fruit and quality and are also best for dehydration hachri fruits.

INM in Kachri

Fertilizers constitute 18-22% costs of cultivation in kachri. Fertilizer costs are rising every year. Therefore, it is important to maximize use of locally available organic nutrient sources to maintain soil

fertility and productivity. The use of inorganic fertilizer in conjunction with organic manures is essential for getting sustainable and profitable yield of kachri. Since, application of inorganic fertilizers alone could not sustain soil fertility and productivity under cropping sequences, the only way to realize the potential yield of crops on sustained basis is through use of various sources of nutrients in integrated manner to make the system productivity profitable.

Nutrients requirement of kachri differ with soil, climate, cultivar and growth period. Nutrients use efficiency is low in kachri in hot arid region. So, there is a need to apply nutrient management techniques. Integrated nutrient management (INM) implies most efficient use and management of organic and inorganic

sources of nutrients to attain higher levels of rucirir productivity along with maintaining the fertility of soil in arid region.

Kachari variety, AHK-119, was sown with hand plough at spacing $2 \text{ m} \times 50 \text{ cm}$ row-to-row and plant-

Table 1. Effect of organic and inorganic source of nutrient on yield of kachri

Treatment	Yield (q/ha)	Average weight of fruit (g)	Dry matter (%)	Dry matter yield (q/ha)	
Control	68.71	26.13	8.16	5.60	
100% (1)	87.89	34.06	8.69	7.64	
75% (I)+7.5 t/hg FYM	104.00	36.25	8.79	9.15	
50%(I)+ 15 t/ha FYM	113.08	38.78	9.81	11.09	
25%(I)+ 22.5 t/ho FYM	93.27	37.00	9.98	9.31	
30 t/ha FYM	91.19	34.78	8.99	8.19	
SEm±	4.86	1.98	0.4	0.46	
CD at (5%)	14.88	6.03	1.29	1.44	







INM under sprinkler irrigation at farmer's field

to-plant distance. The recommended dose of fertilizer was 80 kg N+40 kg of P_2O_2 +40 K_2O /ha, was applied and $P_2^{\circ}O_2$ and 40 $K_2^{\circ}O$ was given as basal dose through single superphosphate and muriate of potash. Nitrogen dose was applied in three splits, i.e. one-third at sowing, one-third at 25 DAS and the rest one-third 50 DAS from fertilizers and FYM was applied as per treatment in furrows (channel technology) at the

Yield with INM

The yield of kachri increased as compared to the control (Table 1). Integration of organic and inorganic sources at equal proportion (application of 50% NPK from inorganic fertilizers and 15 t/ha FYM) gave highest kachri yield (113.08 q/ha) which was significantly higher than all other treatments. The increase in total yield recommended fertilizers. Application of 100% NPK through FYM also NPK through increased yield significantly by 32.71% compared to the control. This treatment gave only 5.12% more fruit yield as compared to recommended dose of fertilizers. Other treatments 25, 75 or 100% of NPK were applied



INM in Kachri under drip irrigation

through organic sources were better than the but inferior to 50% replacement and at par and treatments. In dry matter yield (q/ha), dry manaverage weight of fruit (kg) and fruit yield was a trend as observed in yield.

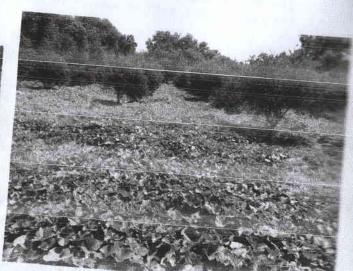
Table 2. Net return with benefit : cost ratio

Yield	C			
(q/ha	Cost of cultivation	on return	return	BE FERR
68.71	33 000			T. Charles
	00,000	, 72		
		175,770	138 697	1.70
104.00	37,255			
113.08	37,437			4 18
93.27	37,618			
91 10	37.00-			3/18
	68.71 87.89 104.00 113.08 93.27	68.71 33,000 87.89 37,073 104.00 37,255 113.08 37,437 93.27 37,618	68.71 33,000 137,429 87.89 37,073 175,770 104.00 37,255 208,008 113.08 37,437 226,152 93.27 37,618 186,533 1	68.71 33,000 137,429 104,429 87.89 37,073 175,770 138,697 104.00 37,255 208,008 170,753 113.08 37,437 226,152 188,715 93.27 37,618 186,533 148,914 91.19 37.800 183.27

I = NPK applied through fertilizers



Kachri 119



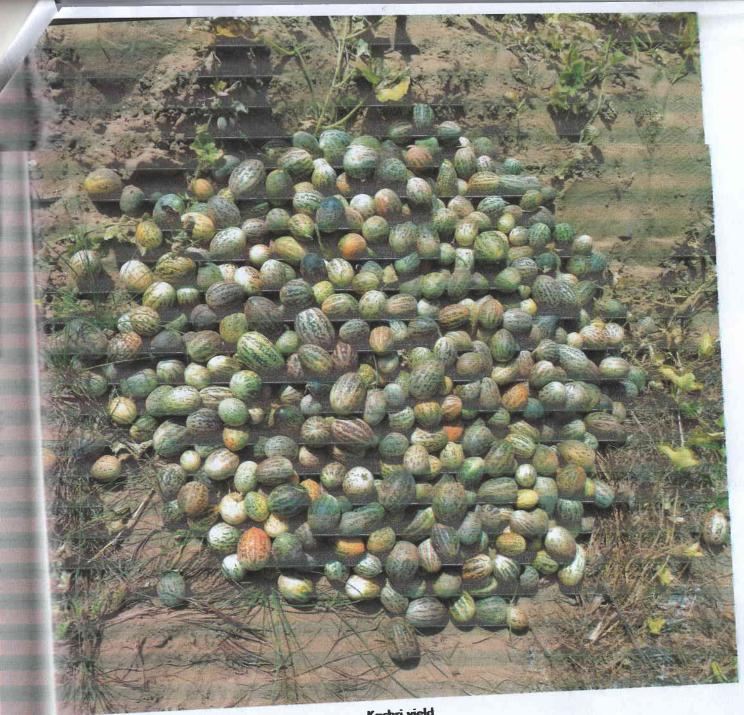
Intercropping in Kachri



Arid Harticulture for Enhancing Productivity and Economic Empowerment



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Kachri yield

Yield

Maximum per cent yield response was observed where 50% (I) + 15 t/ha FYM was applied (64.57%), followed by 75% (I) +7.5 t/ha FYM (54.37%) as compared to the control. This may be due to more partitioning of dry matter to kachri as a result of balance nutrition in the treatment receiving FYM application.

The net return from kachri followed similar trend Table 2) as that of fruit yield with highest values of ₹1.88,715 ha was observed in 75% inorganic NPK + 15 t/ha FYM treatment, followed by 75% NPK+ 7.5 t/

ha FYM (₹170,753 ha) and 25% inorganic NPK along with 22.5 t/ha FYM (₹148,914 ha). FYM application gave net return of ₹144,577 as compare to control (₹ 104,429/ha). The benefit: cost ratio was highest in treatment receiving 50% inorganic NPK + 15 t/ha FYM (5.04), followed by 75% NPK+ 7.5 t/ha FYM treatments (4.58), whereas control gave the lowest B:C ratio (3.16).

For further interaction, please write to: Dr M K Jatav, Roop Chand Balai, Anita Meena and B D Sharma (Scientist), ICAR-CIAH, Beechwal, Bikaner 334 006.

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_ Editor



