

M. R. Morarka GDC-Rural Research Foundation

Vermiculture

VERMICAST APPLICATION IN AGRICULTURE...

The entire technology development of vermiculture in partnership with farmers enabled its applications development almost simultaneously. Based on thousands and thousands of monitored trials conducted for about ten years period and in almost all 15 agro-climatic zones of India, we have developed vermicast applications in following categories:

- **Based on previous use of chemical fertilizers.**
 - very high chemical fertilizers use areas.
 - moderate chemical fertilizers use areas.
 - low or negligible chemical fertilizers use areas.

We have observed that in the first category of very high chemical fertilizers use areas, substitution of vermicast can be done in about 3-5 crop seasons. In moderate chemical fertilizers use areas the substitution has been done in about 2-3 crop seasons. In low or negligible chemical fertilizers use areas vermicast has been used to meet full requirements of nutrients for crops in first attempt itself.

- **Based on nutrients requirements of different crops**

Generally, all agricultural crops have been categorized based on their nutrients consumption for per unit output from an area. For any given location all crops cultivated in that area are expected to give certain optimum yields. Based on our experiences, we have divided them into following categories.

- All rainfed crops such as Sesame, Moong, Urad, Cowpea, Moth, Gwar, Gram, Mustard, Rapeseed, etc. are considered as low nutrients requirement crops. Traditionally no chemical fertilizers are

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used for their cultivation. In such crops an average of 200-300 kgs of vermicast per acre has given excellent results

- In the second category of rainfed crops such as Bajra, Jwar, Castor, Isabgol, Fenugreek, Arhar, etc. farmers have been traditionally using farmyard manures. In these crops an average of 400-500 kgs of vermicast per acre has been found to give satisfactory yields.
- In third category of crops requiring moderate irrigation such as Sunflower, Barley, Maize, Wheat, etc. farmers generally use a combination of chemical fertilizers and farmyard manures. In most of these cases an average dose of 700-800 kgs of vermicast per acre has been recommended as a substitute for either of the two i.e. chemical fertilizer or farmyard manure as the case may be.
- In fourth category comprising of Tobacco, Beetroot, Onion, Carrot, Sweet Potato, Okra, Coriander, Brinjal, Cucumbers, Ginger, Opium, Mentha, etc. a dose of about 1000 kgs of vermicast per acre has been recommended as a substitute for chemical fertilizers. The use of farmyard manure has been also been reduced to 50 percent level.
- The crops like Cabbage, Cauliflower, Potato, Chilli, Sugar Beet, Paddy, Tomato, Garlic, Turmeric, Broccoli, etc. vermicast use of 1000-1200 kgs per acre has been recommended to substitute half the dose of chemical fertilizers. The use of farmyard manure has been continued at previous levels.
- In high nutrients requirement crops such as Radish, Jute, Sugarcane, Gherkin, Banana, etc. vermicast use has generally been recommended at the rate of 1000-1500 kgs per acre. It has been observed that alongwith vermicast, full dose of farmyard manure and the balance being provided through chemical fertilizers gives optimum yields.

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- In horticulture crops especially fruit orchards depending on the stage of growth, vermicast use of 1-20 kgs per plant is being recommended.

Notes:

1. The above recommendations though appearing to be standard application rates, have been found to yield different results. It is therefore, advised that individual farmer should make specific assessment for his own conditions. Generally it can be done by bench marking nitrogen requirement of crops.
2. In majority cases, it has been found that the recommended doses of chemical fertilizers separately cover macro- and micro-nutrients requirements. In case of vermicast use we have found that the use of chemical fertilizers to meet micro-nutrients requirements can be completely eliminated.
3. Vermicast use, always with hesitation has been an advantage in its promotion. It automatically gets used under part substitution approach to whatever a farmer has been generally using in the past.
4. Unlike chemical fertilizers which are applied at certain stages of crops, vermicast can be used at any stage of crops. As compared to one single dose split doses have been found to give better results. Beneficial effects of vermicast use have been observed in many subsequent crops.

The recommendation for vermicast application based on laboratory test can be given on demand.

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Vermicast application in agriculture

BENEFITS OF VERMICULTURE...

Beginning from 1995, in all documented trials conducted by Morarka Foundation, the users have been requested to rate the performance of vermicast. Each farmer has been requested to list three most important benefits derived by them from the use of vermicast. The summary analysis of benefits in the order of priorities reported by the farmers is given below:

First priority benefits

- Additional price gain from the sale of farm produce
- Better taste of food
- Bigger size of farm produce
- Less irrigation water requirement
- Cultivation has been possible in saline-alkaline conditions

Second priority benefits

- Significantly more tillering, flowering and grain setting
- Less insects and pests attack on crops
- Less weed infestation

Third priority benefits

- Better germination
- Less termite attack
- Better overall appearance of crops
- Improved soil texture

The field data for the monitored trials can be made available on demand.