Magazine Name: Agriculture Today

Month: July, 2021

AATM NIRBHAR BHARAT

INNOVATIVE INFRASTRUCTURE APPROACH IN SUKHET MODEL

SELF RELIANCE THROUGH MONETIZATION OF AGRO WASTE

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The rural areas of Bihar, like other rural areas of the country, suffer from poor sanitation. There is no mechanism for the disposal of agro waste as well as household waste. The villages also lack suitable disposal of cow dung, mainly used for domestic fuel. With Ujjawala programme, it was expected that the cow dung cake will be replaced by LPG. Unfortunately, poor economic condition and patriarchal society made refilling of cylinders less than 50 percent. Thus, a unique solution of sustainable nature was conceptualized to achieve four objectives: (a) Rural sanitation by collection and recycling of household waste (b) Smokeless cooking (c) Restoring nutritional balance of soil and (d) Providing employment to rural youth.

With this concept, a vermicompost unit having capacity of 56 windrows of size 10/ x 3/x 2.5/ (L x W x H) alongwith a shed for storing cow dung and agro waste was constructed. Infrastructure was created to collect household waste and shredding of agro waste along with daily collection of cow dung. Two dustbins were provided to each household for collecting household waste. A household contributing cow dung of two cattle daily was given an LPG refill every two months. For vermicomposting, batch process is being followed in which shredded biowaste is mixed with cow dung slurry in the ratio of 65:35 (waste: cow dung, w/w) , at suitable moisture and temperature (50-65 percent and 35-400C), the epigeic earthworm species (Eisenia fetida, Peryonix excavates and Eudrilus eugenii) was spiked @ 2 Kg per 1000 kg of bio waste cow dung mixture having 2000-2500 young earthworms (1.2±0.25 g/worm) with each cycle getting completed in 12 weeks accommodatingfor four cycle a year. The compost quality and maturity parameters i.e., C/N ratio. CEC/TOC ratio, Total N,P, K, and micronutrients (Fe,Cu, Mn, Zn) has been assessed and compared with standard compost quality parameters.

About 250 tonnes of vermicompost will be prepared every year giving gross revenue of Rs 15 lakhs per annum. The unit has been designed for 100 farm families, hence about 600 cylinders will have to be purchased costing 5.5 lakhs per annum. With 5 laboures being paid 5 lakhs per annum and Rs 50,000 as contingent expenditure, the total annual expenditure will be 11 lakhs with total profit of 4 lakh per annum. The total capital expenditure is about 16 lakhs which include cost of structure, shredder, carts (including one e-cart) and chaff cutter along with arrangements of water supply and electricity. The requirement of working capital is about 10 lakhs per annum.

Presently the system is serving 56 farm families. It is expected that there will be annual production of 240 tonnes of vermicompost. With a rate of Rs 6000/- per tonne, the annual gross return will be Rs 14.4 lakhs with net profit of Rs 5 lakhs (approx).

The system, called the *Sukhet Model*, is in operation in a village in Madhubani district of Bihar. It shall be self-sustaining. Bihar has 2 crore farm families. To provide similar facility, we shall need about 2 lakh units. The system will provide employment to 10 lakh people, provide 5 crore tonnes of vermicompost, and will provide 6 cylinders annually to 2 crore families. This will bring a huge transformation in rural Bihar in terms of employment, wealth creation, smokeless domestic cooking and rural sanitation. There will be sufficient organic manure availability for restoring soil health and boost organic farming.