NATURAL FARMING TECHNOLOGY STRENGTHENS FOOD SECURITY OF LAND REFORM BENEFICIARIES

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Country: **India** - Principal Organisation: **SARRA**

ABSTRACT

Land reform beneficiaries in India are finding it very difficult to adopt chemical farming practices due to their prohibitive costs. Hence recently the Government has started encouraging small and marginal farmers to participate in an organic agriculture movement. Due to the lack of capacity building and training initiatives, many farmers are unable to participate in organic agriculture initiatives. Only the big and well to-do farmers have increased their participation. Natural farming systems are simple to develop and assisting small-scale and marginal farmers in their development is feasible with limited resources. For example, the application of the LAB (Lactic Acid Bacteria) technology results in increased production, productivity and income levels.

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ESTABLISHMENT AND STRENGTHENING OF LOCAL INSTITUTIONS

RESEARCH AND TRAINING

KNOWLEDGE AND INFORMATION MANAGEMENT

BACKGROUND

India has a high number of poor and hungry people, despite its growing economic status. The process of rapid urbanization is leading to land alienation and marginalization of farming communities. A large number of small and marginal farmers are moving away from their diverse food production systems and swelling the ranks of urban poor by working as migrant labour in various urban centres across India.

In addition to these problems, the youth are not interested in agriculture. They think it is not viable, profitable and it is a lowest rung of the ladder compared with other professional livelihoods. Rising inflation and food crisis are realities for poor families. The poor are ending up eating rice and wheat doled out through Government Ration Shops while their food and nutritional security is compromised severely. The tribal (Adivasi) and Dalit farmers, who often have insecure tenure, are the most exposed to being evicted from their lands. Another issue threatening food and nutritional security is the considerable narrowing down of dietary diversity. The food basket of the poor is shrinking in size and shape. Small and marginal farmers are motivated by government agencies to grow monocultures of a few crops in the place of their highly diverse mixed cropping systems. The changes in their diet are also due to the alienation of the younger generation from cultivated foods, which brought diversity to diets.

THE CHALLENGE

Because of modernization, farming was affected by the so-called green revolution, whose pillars were the use of hybrid seeds, chemical fertilizers and pesticides, mono-cropping and irrigation.

The excessive use of chemicals led to microbial population dying in the soil and land becoming unfertile. The soil has become hard and unproductive.

Climate change has made farmers' conditions more vulnerable, due to low and uncertain yields. Besides erratic rainfalls, difficult access to credit and rural-urban migration of men, with women left alone in the villages, have placed a challenge on farming. SARRA introduced Natural Farming. Lactic Acid Bacteria Serum can be used to enhance soil fertility, protect crops from diseases and enrich compost. It can also be used as a drink for livestock (for cows, goats, pigs and chicken) and even for humans.

OVERCOMING THE CHALLENGE

The Lactic Acid Bacteria (LAB) are anaerobic microorganisms that, in the absence of oxygen, break sugar into lactic acid. LAB is very effective in improving ventilation of air in the soil. Fields recover fertility and the soil becomes soft and fluffy when LAB is applied on the soil. Promoting LAB reinforces the ability and anabolism of microbes living on the plant stem and leaf, a condition that arises from the abuse of insecticides and fungicides. By blending externally introduced knowledge with local traditional knowledge, SARRA could train farmers on the use of this technology and ensured sustainability and upscaling through the engagement of youth in trainings of trainers and the introduction of LAB in a number of villages.

MOVING TOWARDS PEOPLE-CENTRED LAND GOVERNANCE

The farmers who have endorsed SARRA's LAB technology are achieving results like lower production costs, increased productivity, sustainability, increased self-sufficiency and increased income. The use of LAB has also improved the productivity of homestead plots through an initiative called FAITH (Food Always In The Home) Gardens and enhanced the self-confidence of the women managing them. They gained increased income and provided nutrition, food security at the family as well as community level.
Result oriented collaboration with academia and research institutions have enabled several students to participate in doctoral studies related to the LAB, IMO (Indigenous Micro-Organisms) Technologies.
SARRA has developed a critical mass of researchers and extension agencies for the promotion of pollution-free sustainable farming technologies.
Land reform beneficiaries have become more organized. They participated in the co-operative structures which enabled them to obtain benefits from the planned initiatives of the national and state Governments. They are now able to fight for the cause of their land rights as well as to enjoy their land and property rights more fully.

THE GOOD PRACTICE IN FIVE SIMPLE STEPS

1

Raising awareness in communities on the benefits of the LAB technology

1. LAB is very effective for improving soil ventilation and for growing fruits and leaf vegetables.
2. LAB accelerates fruit growth during transplanting and effectively enhances the initial growth of the plant.
3. When LAB is used during the vegetative growth period of fruiting vegetables and fruits, higher quality and shelf life improves.
4. LAB increases the solubility of fertilizers.
5. LAB neutralizes the ammonia gas produced when immature compost is applied to plants.
6. LAB is conditionally anaerobic, so they can also survive with oxygen.
7. LAB is a strong steriliser.
8. LAB can be used to cultivate Indigenous Micro-Organisms (IMO).
9. LAB solubilises phosphate in 100-200 ppm (parts per million). Using LAB in phosphate rich soil will increase the capacity to absorb the insoluble phosphates and overcome to saline disorder as a result of the decomposition of the phosphates.
10. LAB has about a week long resistance to some fungi.

2

Community-level pasture management. SARRA has a small dedicated team who is in a position to undertake capacity building programs. They are able to maintain a natural farming demonstration and training unit. SARRA works with local communities and supports them in identifying motivated youth to participate in a training of trainers program.

3

Training on the LAB technology: preparation and application processes.

1. Rice - Washed water
2. Milk (unprocessed without boiling)
3. Brown suger (Jagerry)
4, Clay jar orglass jar
5. Porus paper (Manila paper, paper towel or white paper)
6. Thread or rubber band.

The method of preparation. Rice-washed water must be put in a jar. The mouth of the jar must be covered with paper and the jar kept in shade. The water must be stored like this for two days to ferment in a tropical climate and 4 days on a cold climate.

This rice water must be added to milk . The ideal ratio between milk and rice water is 4:1. The best milk to be used is the milk from cows. Since milk has more nutrients than rice-washed water the Lactic acid bacteria will grow vigorously. In 3-4 days the jar will have three layers: a) white floating matter on the top; b) light yellow liquid in the middle portion; c) dirt in the bottom. The liquid in the middle is the Lactic Acid Bacteria. The floating substance must be removed, whereas the light yellow liquid in the middle portion strained, saved and stored in a cool place. The shelf life of extracted LAB is around 15 days in a tropical climate and 1 month in a cold climate.

The application of the LAB technology. For livestock to their digestive function LAB can be given to animals in the ratio 2ml of LAB for 500ml of water. Humans can also use 5 drops in a 200ml glass of water. LAB is extremely effective in making fruits and leafs larger. However, the amount of LAB should be used according to the stages of the plant. 5 ml of LAB in 1000ml of water can be added to with mixed compost. The fermentation process occurs fast, leading to very effective results. LAB also functions to prevent the fermented mixed compost from decaying. The compost will be very effective on 14th and 15th day after making.

4

Spreading the knowledge and scaling up. The trained youth and women are expected to work with neighbouring communities. Each trainee must work with 10 neighbouring families. Within the short period of 6 months communities are able to achieve a multiplier effect through the development of community leadership for the promotion of LAB technologies.

5

Montoring. During 2018 SARRA's team was able to assist a trained cadre in Kerala, Telengana, Rajasthan, Bihar and Andhra Pradesh. They supported in the replication of similar initiatives, as this technique enables to multiply the application of LAB technologies at a fast rate.

KEY FACTORS OF SUCCESS AND REPLICABILITY

The practice of using LAB is successful because it is simple, economical and highly practicable. It is prepared through the application of locally available materials and through the utilization of indigenous knowledge systems. For example, adding charcoal in the soil along with LAB is very successful and has been used by thousands of farmers as a strategy to improve soil fertility in India.

LESSONS LEARNED

1. The application and spreading of a simple technology that improves farmers' food security is possible through the strategic collaboration of farmers, scientists and activists' alliances working in partnership.
2. Increased production, productivity and income are possible through the application of LAB technology. For example, one outstanding achievement was that a farmer who normally used to get 3 or 4 cuttings from his spinach cultivation could obtain 18 cuttings or more and of higher quality after the application of LAB technology.
3. From a technical point of view, and for the purpose of replication, it is important to consider the type of milk that is used. While cow milk is suitable for this process, as SARRA could test on the ground, buffalo or goat milk might have to be handled differently.

FIND OUT MORE

SARRA: www.cgnfindia.com