

Organic farming Practices developed by Mr.Anthonisamy



Mr.Anthonisamy (75 years) studied upto 8th std. has been native of Puliankudi village, Tenkasi district and he has been awarded with 3rd prize for developing a new acid lime variety during 3rd round competition organized by NIF. He also developed few innovative practices which are shown below:

1. Fish Jaggery Mixture as organic liquid fertilizer

Mr.Anthonisamy has developed organic liquid fertilizer which he claims substitute urea and nitrogenous fertilizer. In a plastic drum of about 200 liters he prepares this solution by taking the following ingredients:

Fresh fish procured from ponds (“Kendai” fish) or from sea water – 25 kg, jaggery – 25 kg, water – 100 liters and papaya fruits – 6 number.

First he mixes jaggery and fish together and soaking in water for 15 days. On 16th day he adds papaya fruits after removing all the seeds from the fruits and crush the fruits along with the existing solution. After 4 days (totally 20 days of initial soaking) of putting papaya fruits he adds 50 liters of water and finally filtered. This has to be sprayed at 1 liter per acre or 100 ml per 10 liters of water. This has to be sprayed 2 times for paddy, 4 times for sugarcane and 2 times for onion starting from 15 – 20 days after planting at 15 days interval.

Mr. Anthonysamy crushes sugarcane in his farm and prepares organic jaggery. Sometimes he collects waste materials while preparing jaggery which is locally called “alaikazhivu” (waste liquid jaggery usually relished by pigs) and mixes with the water

at 10 times and later add equally jaggery fish solution together and sprayed to sugarcane as foliar fertilizer by using mechanized sprayer attached in the power tiller. He never applies inorganic fertilizers and he is getting 80 tones of cane yield per acre.

2. Control of Mushrooms in Acidlime:

During rainy season (Sep – Nov) there will be growth of mushrooms from the collar region of the trees of acidlime. If these mushrooms are not controlled it will lead to death of trees. Farmers in this area usually applies Bordeaux mixture for control of mushrooms. Bordeaux mixture needs 4 – 5 days to suppress the growth of mushrooms. Mr. Anthonysamy has succeeded in finding alternative method of disease control by using locally available materials:

“Sotrukatalai” (Aloe vera) – 2 kg, Garlic – 1 kg are to be crushed and ground well by adding little water to make it as a paste. This has to be smeared over the affected collar region of trees. This practice ensures control of mushrooms within 3 hours.

He also uses this “Sotrukatalai” Aloe vera + garlic mixture for control of ear head bugs in paddy or sorghum. For control of ear head bugs he adds “Moottanarielai” (Coleus aromaticus), tulsi (Ocimum sanctum) each one kg and mixes in 100 liters of water into the existing “Sotrukatalai” Aloe vera + garlic mixture. This ensures protection of grains from ear head bug attack and better than synthetic pyrethroids recommended by agricultural department.

3. Mulching in sugarcane



He has been cultivating sugarcane for more than 25 years. He plants sugarcane setts in 6 x 2 ft. spacing. He developed mulching between rows of sugarcane by using the pruned leaves of sugarcane. Peeling of sugarcane leaves can be undertaken when it reached growth of 6 – 7 leaves in a plant; stripping of leaves can be done 3 – 4 times

in a year. The stripped leaves are placed in the soil in the rows for natural decomposition (over and above the green manure plant uprooted after 45 days of sowing between the rows of sugarcane). In addition application of *Jeevamrutham* solution 100ml in the root zone of each sugarcane plant enhances quick decomposition. (He broadcasted green manure seed in between the rows of the sugarcane at the rate of 25 kg/acre).

Jeevamrutham preparation :

For *jeevamrutham* preparation the required ingredients are cow dung -10 kg, cow urine -10 lit., jaggery-2kg, flour of legume -2kg.

Mix all this ingredients and store it for 3 days. After 3 days mix this *jeevamrutham* with water 200 lit. and apply to the crops. *Jeevamrutham* application to each crop are 100g at the root zone. He maintains 3600 setts (hills) in one acre and he tells that grown up sugarcane is 1.5 – 2 kg. weight; there are 10 sugarcane plants in each cluster or hills. Therefore the yield of sugarcane in one acre is 60 tons. He is maintaining ratoon sugarcane for the last 27 years with consistent yield.

He is having jiggery production centre in his farm and at the time of preparing jaggery to remove dust he uses limestone 50 g, soda powder-10 g. for each tank.

4. Green Manuring in Sugarcane

Sugarcane production requires frequent irrigation, for the crop needs a lot of water in the production cycle. It is very difficult to raise it in sandy soils, as they are generally low in organic matter content and therefore not retaining soil moisture very well. Hence, sugarcane production on sandy soils is generally water-inefficient. However, sugarcane can be raised successfully on arenosols and other soils consisting of mainly sandy soil texture by enhancing the soil organic matter content. This can be done in form of green manuring with the subsequent incorporation of the remnants of the green manure crops in the soil through successive mulching. This practice presents a row-intercropping system with two different green manure crops for soil improvement in sugarcane production in Tamil Nadu, India. By improving the soil, sugarcane can be raised as ratoon crop for several years without much loss of yield. It explains a water efficient way for raising sugarcane on poor sandy soils, by increasing the organic matter content. Next to enhancing the water holding capacity of the soil, it additionally benefits soil fertility and thus potentially increases sugarcane production, especially when legumes are used as green manure crops.

Description

Usually, there is a common practice to raise green manure as intercrop in sugarcane and incorporate it as mulch 45–50 days after sowing (DAS). The present practice followed by Mr. Antonisamy (Puliyangudi village, Tirunelveli district, Tamil Nadu) however, shows a modified

method by introducing some practices based on close observations in a sugarcane production site in Tamil Nadu:

A single green manure crop is raised in a row-intercropping system together with sugarcane setts. Intercropping is the cultivation of two or more crops on the same field at the same time. Here the two different crops are arranged in a row (figure 1). The practice has been tested with CO – 86032 variety of sugarcane, a recommended variety for organic sugarcane production in India, according to Tamil Nadu Agricultural University (TNAU). Harvests with this method can reach up to 200 tons/ha.

The practice of planting these two green manure crops by row-intercropping is described below:

- One row of sugarcane is planted at 60 cm (2 ft.) intervals; then the spacing of 2m (6 ft.) will be provided between individual rows of sugarcane setts.
- In this space of 2m (6 ft.), the farmer raises 2 rows of **Dhaincha** (*Sesbania aculeata*) as first green manure crop. The field is irrigated using drip lines, arranged in between the rows of **Dhaincha** and throughout the sugarcane rows.



- After 45–50 days of sowing (DAS), the Dhaincha green manure plants are uprooted manually and incorporated into the soil by manual labour. It is incorporated into the soil in between the space of 2m (6 ft.), the space between the rows of sugarcane.
- After mulching, the 2nd green manure crop is sown. Here, green gram (mung bean) is used as green manure crop. Sun hemp (*Crotalaria juncea*) can be used instead, as it is less costly per kg of seed. The more, sun hemp is free from aphid attacks which usually occur in green gram. Also, the foliage obtained from sun hemp is more than the green gram, which means, that a larger amount of mulching material and compost is available.
- The 2nd green manure crop is also uprooted after 45 days after sowing (DAS) and incorporated into the soil.

Spacing Innovation

Usually, sugarcane setts are planted at the rate of 75,000 setts per hectare, with 2.3m – 3.3m (7 – 10 ft.) space between sugarcane rows.

- Applying the current practice, only 9,000 setts per hectare (3,600 per acre) are planted instead, due to the innovative spacing practice described above. The sugarcane setts are planted with a row spacing of 2m (6 ft.), standardized as of 2 x 0.6 m (6 x 2 ft.).

Benefits of using improved green manure crops and adapted spacing

This spacing system is beneficial for:

- Enhancing and retaining soil fertility. The texture of the soil, where this practice was implemented, improved from coarse sandy texture to a soil rich in humus, due to the incorporation of organic matter into the soil. This reduces the consumption of irrigation water considerably, because the organic matter in the soil improves the water holding capacity of the soil. It thus helps the farmers to use less water for irrigation.
- Harvesting more sunlight and for obtaining sufficient air space between the rows of the single sugarcane setts. The growth of the sugarcane plants is enhanced.
- Walking freely within the rows' space for monitoring intercultural operations without any difficulties.
- Avoiding rat damages, because there is less shade between the rows, where rats could be hiding.
- In the conventional system farmers give space at 0, 75 m (2 1/2 ft.) between rows of sugarcane. The manual operation of stripping of leaves is very difficult. Due to this the rain water stands in the leaves as drops leading to lodging of cane and ultimately resulting in less recovery of cane. The susceptibility to rat damage is usually very high.



Water saving aspects

- A drip line in between rows of sugarcane is used for irrigation. The irrigation requirement in the area is once in 3 days for 2 hours, throughout the growth period. Using the conventional growing system, sugarcane was irrigated daily for 3 hours.

- For 1 kg of producing jaggery only 500 liters of water are necessary in the proposed row intercropping system. In the conventional system, 22,000 liters of water are generally needed for producing 1 kg of jaggery.
- Sugarcane leaves / trashes stripped from the cane are incorporated during the 4th month and the 7th month. Leaves stripped during the 9th month are incorporated in the 2m (6 ft.) gap. Soil is applied over the uprooted green manure crop for quick composting.

Additional measures

From the 4th month onwards the trashes from sugarcane can be removed and placed in the soil as mulch. The yield of sugarcane is determined by erect canes which should not lodge. In order to prevent lodging of the canes incorporate the soil around the root zone should be periodically earthed up. By doing this, the inter space between the rows of crops is deepened to a depth of about 60 cm (2 ft.), also contributing to aeration.

After harvesting sugarcane ratooning is commonly used for perennial sugarcane production. In other farmers field where there is no green manuring, the ratoon crop yield declines steadily and reaches below 30 tons per acre (0.4 ha) in the 3rd year. The farmer then has to adopt fresh plantings from 4th year onwards. With this practice up to 24 ratoons could be reached so far, with only little decline in yield.

Video link : <https://youtu.be/upGj8r2V3os>
<https://youtu.be/oPJKILSzcCo>

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