



Project

Farm Revival

A CHEMICAL FERTIGATION FREE BIO-FARMING INITIATIVE



Farmers today are concerned about soil health and environmental impact due to the heavy use of chemical fertilizers and crop care chemicals and are looking for chemical free bio-farming alternatives, without any yield loss.

Keeping this objective in mind, Dr. Ajay Ranka, CMD – Zydex Group, initiated project “Farm Revival” – an initiative that demonstrates to the farmers chemical fertigation free bio-farming without yield penalty in the first crop cycle itself.

The project aims to increase the organic matter content of soils making them soft, porous and aerated, to enhance crop friendly soil microbial population and its activity, with a focus on higher productivity and improved water table in our farms.

Through the Project Farm Revival initiative, we are committed to provide profitable and sustainable farming ensuring nutritious, safe and plenty of food for all.



Higher yields with chemical fertigation free bio-farming. . . . NOW POSSIBLE

- Dr. Ajay Ranka



Project

Farm Revival

A CHEMICAL FERTIGATION FREE BIO-FARMING INITIATIVE

STEP WISE PROTOCOL TO BE FOLLOWED FOR PROJECT FARM REVIVAL

STEP 1

Fungal bio-digestion of Farm Yard Manure with **Zytonic BioDigester**, to produce biologically active, humus rich and free flowing manure

STEP 2

Land Preparation and Basal Application of **Zytonic M** for balanced nutrition to crop

STEP 3

Stress protection and growth enhancement of crop by foliar application of **ZycoShield**

STEP 4

Providing nutrition to boost optimum crop growth through top dressing of **Zytonic M**

STEP 5

Crop protection with preventive use of **ZycoNeem, Zytonic Neem Active**. Need based reduced and effective usage of chemical pesticides with **Zytonic Active & ZycoDrop**.

STEP 6

Round the year farm utilization with adoption of **Zytonic** bio-farming technique - key to improved profitability, by growing cattle fodder / short crops. No need of leaving land fallow.





Biologically active, humus rich, odourless, black and free flowing manure with static composting. . . . NOW POSSIBLE”

– Dr. Ajay Ranka



STEP 1

Fungal Bio-digestion of Farm Yard Manure

In most of the cases, the Farm Yard Manure used in fields is of poor quality due to partial digestion by static composting on land surface. This leads to higher requirement (2 – 10 MT of manure per acre), which results in shortage of quality manure with increased expenses for the farmers.

The unique fungal bio-digestion technique from Zydex helps to convert animal dung (excreta) along with crop and fodder residues into humus rich, blacker looking, odourless, free flowing manure, having quick response on crops.



With this, transition to bio-farming is now possible with an extended coverage of 3-4 times, using the same quantity of manure.

Higher income from animal husbandry and sustainable bio-farming



- 10 – 12 tons of dung (excreta) and fodder residue gets accumulated from every cow / buffalo / large farm animal per year
- The collected heap should be bio-digested by spraying a solution of **Zytonic BioDigester**. **Zytonic BioDigester** should be applied on at least two months old FYM.
- The Zytonic Technology increases the speed of bio-digestion and promotes the exponential growth of beneficial aerobic soil microbes, releasing nutrients and increasing beneficial humus content
- Thus, farmers can prepare 8 – 10 MT of finished manure from a single farm animal in one year. The quality of this is almost equivalent to vermicompost (USD100/MT).

Dosage and Application:

- Dose: 2 kg **Zytonic BioDigester** per MT of farm / animal residues
- Dissolve **Zytonic BioDigester** in 150-200 litres of water
- Spray this **Zytonic BioDigester** solution over the pile of farm / animal residues. Extra water can be used to wet the pile as needed.
- Leave the pile covered for 30 – 45 days to allow the process of effective bio-digestion. Maintain moisture of pile by adding water if needed.
- The enriched manure is now ready to use

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Soft, porous, aerated soils in biological farms. . . . NOW POSSIBLE

– Dr. Ajay Ranka

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STEP 2

Land Preparation and Basal Application

- There is no need to use any chemical fertilizers such as DAP, Urea etc. in the basal dose under this protocol
- During the field preparation for sowing, use 1 MT of bio-digested manure with 20 kg **Zytonic M**. Once mixed, the resultant enriched manure can be applied in one acre of land as a basal application, followed by 6 – 8 inches deep ploughing.
- The **Zytonic** technology makes soils soft, porous and aerated along with an improved water holding capacity. It also promotes a larger, profuse root zone development with an extended and dense mycorrhiza hyphae network. This along with the enhanced soil biology delivers sustainable and higher amounts of nutrients throughout the growing season, thereby improving germination, initial plant growth and plant survival. Higher land occupancy by crop plants per acre also leads to higher production.





Bio-Farming with less water. . . . NOW POSSIBLE



– Dr. Ajay Ranka

STEP 3

Stress Protection and Growth Enhancement of Crop

- The **ZycoShield** combo has proven to be very useful for plant growth and protection of crops from pests, diseases and abiotic stresses
- **ZycoShield** forms a protective shield over the leaves, branches and stem of the plants, thereby imparting the following benefits:
 - More greenery with less water
 - Improved overall plant immunity
 - Enhanced and controlled spreading
 - Improved quality and shelf life of flowers and fruits
 - Increase in drought resistance of the crop



ZycoShield Ingredients & Dosage:

ZycoShield

1 kg

Zytonic[®]Active

150 g

ZYCODROP[™]

6 g

ZycoShield Protocol:

Step 1: Dissolve 6 g **ZycoDrop** in 5-10 litre of water and wait for 10 minutes. Take 1 kg **ZycoShield** powder and mix in 10-15 litre water. Add 150 g **Zytonic Active** in the solution and stir it for few minutes to ensure complete mixing. Add **ZycoDrop** solution to this and leave this solution to mature for 12 - 24 hours before spraying.

Step 2: Add more water to take it to 100 litre volume and spray. Make sure to completely drench the plant while spraying from the top and bottom.

For best results spray before 10 am or two hours before the sunset.



Sustainable farming, water harvesting and better quality produce. . . .
NOW POSSIBLE

– Dr. Ajay Ranka



STEP 4

Providing Nutrition to Boost Optimum Crop Growth



Short Duration Crops (Wheat, Paddy, Maize, Vegetables etc):

- The **ZycoShield** combo should be sprayed at an interval of 30 days

Long Duration Crops (Sugarcane, Ginger, Turmeric etc) / Nutrition Intensive Crops (Potato, Tuber Crops etc):

- Broadcast or drench (1:100) using 5 kg **Zytonic M** per acre (30-45 days after sowing). Repeat this application 2 – 3 times as per the crop type and dosage recommendations. For sugarcane, use this application 4 times in the first 7 – 8 months of the crop cycle to get improved tillering and growth.
- **ZycoShield** should be sprayed 4 – 5 times during the crop cycle at an interval of 30 days

Horticulture Crops: (Banana, Papaya, Pomegranate, Apple, Almonds etc):

- Mix 20 kg **Zytonic M** with minimum 1 MT of bio-digested manure and broadcast over 1 acre followed by thorough mixing or drench with 1:100 solution of the above combinations. Two such applications can be done per year. Once before plantation or after plucking of fruits and second after six months of first application, preferably before the rainy season
- For a denser root zone with an extended Mycorrhiza hyphae network, it is essential to use bio-digested FYM along with **Zytonic M** twice every year. This will enhance soil biology, and improve water holding capacity, and deliver substantially higher nutrients to the crop throughout the growing season, thereby improving quality and yields.
- **ZycoShield** should be sprayed 5 times (during environmental stress period) to get effective biological protection from stress conditions and maintain plant growth
- For rapid & healthy growth during the first three years of plantation, application of 5 kg **Zytonic M** (per acre) is recommended additionally, along with bio-digested manure/ FYM, directly around the roots (band application) or through drenching (1:100 solution), at an interval of every 2 months



Enhanced and active soil biology in all farms and every crop cycle. . . .
NOW POSSIBLE”

– Dr. Ajay Ranka



Total Dosage (Broad Guidelines)						
Crop	Product	Unit: Kg/Acre				
		Nursery (500 sq. m.)	Basal	Top Dressing	Foliar Spray	Total
Low Cost/Low nutrient Intensive Crops	Zytonic M	2	14	-	-	16
	ZycoShield	-	-	-	3	3
	Zytonic BioDigester	-	2	-	-	2
	Zytonic Enriched FYM	100	1,000	-	-	1,100
Small/Short Duration Crops	Zytonic M	2	20	-	-	22
	ZycoShield	-	-	-	3	3
	Zytonic BioDigester	-	2	-	-	2
	Zytonic Enriched FYM	100	1,000	-	-	1,100
Long Duration Crops (8-12 months) / Nutrient Intensive Crops	Zytonic M	2	20	20	-	42
	ZycoShield	-	-	-	5	5
	Zytonic BioDigester	-	4	4	-	8
	Zytonic Enriched FYM	100	2,000	2,000	-	4,100
Fruit Trees, Floriculture & Plantation/Orchards (over 3 years)	Zytonic M	-	20	20	5	45
	ZycoShield	-	-	-	5	5
	Zytonic BioDigester	-	4	4	-	8
	Zytonic Enriched FYM	-	2,000	2,000	-	4,000
Fruit Trees, Floriculture & Plantation/Orchards (under 3 years)	Zytonic M	2	45	35	5	87
	ZycoShield	-	-	-	5	5
	Zytonic BioDigester	-	2	4	-	6
	Zytonic Enriched FYM	100	1,000	2,000	-	3,100

- Low Input Crops: Soy Bean, Gram, Pulses, Mustard, Millets etc.
- Short Duration Crops: Wheat, Maize, Paddy, Vegetables etc.
- Long Duration Crops: Sugarcane, Ginger etc. Nutrition intensive crops: Potato, Yam etc.
- Horticulture Crops: Banana, Papaya etc.

Note: For detailed crop specific protocol contact your nearest **Zydex** representative



Bio Farm Produce with Minimal Chemical Residues. . . NOW POSSIBLE



- Dr. Ajay Ranka

STEP 5

Crop Protection

Reduction in Chemical Inputs / Pesticide Sprays

Protocol for Crop Protection:

- Mix 3 ml /litre **ZycoNeem** and 2ml /litre **Zytonic Neem Active** in water as per requirement and spray for improved resistance to pests and various crop diseases
- To keep the crop disease free, spray this solution at an interval of 30 days. Farmers can also use extracts of garlic, chilies / pepper or custard apple seeds etc. along with **Zytonic Neem Active**



Use of Chemical Pesticides / Insecticides (only if required):

- Add 3 ml /litre **Zytonic Active** with 50-75% of the recommended dosage of chemical pesticides and mix well
- Add required quantity of water and spray. This allows longer lasting protection from pests and diseases along with improved efficacy and reduced pesticide residues, thereby allowing farmers to meet crop care chemical residue standards for improved safety.
- To minimise the risk of chemical drifting on non target crops or applicator while spraying, a unique mist/drift control agent **ZycoDrop** is recommended to be used with **Zytonic Active**

- **Dose:** 5-10 ml / 100 liters (high pressure pumps will require higher dose of **ZycoDrop** for effective control on misting)
- Prepare two solutions as follows:
 - ✔ **Solution 1:** Take 15-20 liters of water and add 10-20 ml of **ZycoDrop** & stir well. Wait for 20 mins.
 - ✔ **Solution 2:** Mix the recommended dose of **Zytonic Active** with the required dose of crop care chemicals separately and wait for 20 mins.
 - ✔ Mix the above two solutions together add required water and spray.





Round the year farm productivity & profits. . . NOW POSSIBLE

– Dr. Ajay Ranka



STEP 6

Round the Year Farm Utilization

The adoption of **Zytonic** bio-farming technique, makes soils soft, porous and aerated. It also enhances soil aeration and gas exchange thus, promoting exponential growth of the beneficial aerobic microbial population (bacteria, fungi, protozoa, beneficial nematodes etc) and preventing crop damage from anaerobic bacteria. This gives farmers an opportunity for earning an extra income by growing short duration crops during the fallow season especially in tropical climate areas, instead of keeping fields bare and idle.



Dosage and Application:

- Basal: Use 1 MT bio-digested FYM + 5 kg Zytonic M per acre prior to sowing and rotoation
- Foliar: 30 – 45 days after germination, spray 1 kg **ZycoShield** dissolved in 100 litres of water per acre
- Bio-farming with the Project Farm Revival protocol makes farm soils soft, porous, aerated and productive with higher yields





Zydex[®]
Innovating for Sustainability

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