

- **Production and utilization of growth promoters in organic farming.**

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ORGANIC FARMING



GROWTH PROMOTERS IN ORGANIC FARMING

- **Why growth promoters are necessary in organic farming**
- **In organic farming we are not utilising any synthetic fertilizers and depending upon bulky organic manures and concentrate organic manures.**
- **It is not easy to mobile these bulky organic manures due to the cost and transportation**
- **The way by using of growth promoters are only the**

MAJOR GROWTH PROMOTERS

- Panchakavya
- Jeevamirtham
- Fish Amino acid
- Waste decomposer
- Groundnut cake solution
- Application of pseudomonas and other bio agents

PANCHAKAVYA

- **Five Products from Cow is called panchakavya**
- **Cow dung 5 kg**
- **Cow urine 4 lit**
- **Milk. 3 lit**
- **Curd. 2 lit**
- **Ghee. 1 kg**

INGREDIENTS



PHYSICAL, CHEMICAL AND BIOLOGICAL PROPERTIES OF RANCHAPALLA

Chemical composition

pH	:	5.45
EC dSm2	:	10.22
Total N (ppm)	:	229
Total P (ppm)	:	209
Total K (ppm)	:	232
Sodium	:	90
Calcium	:	25
IAA (ppm)	:	8.5
GA (ppm)	:	3.5

Microbial Load

Fungi	:	38800/ml
Bacteria	:	1880000/ml
Lactobacillus	:	2260000/ml
Total anaerobes	:	10000/ml
Acid formers	:	360/ml
Methanogen	:	250/ml

TIME OF APPLICATION OF PANCHAKAVYA FOR

10,15,30 and 50th days after transpalnting	
Sunflower	30,45 and 60 days after sowing
Black gram	Rainfed: 1st flowering and 15 deays after flowering Irrigated: 15, 25 and 40 days after sowing
Green gram	15, 25, 30, 40 and 50 days after sowing
Castor	30 and 45 days after sowing
Groundnut	25 and 30th days after sowing
Bhendi	30, 45, 60 and 75 days after sowing
Moringa	Before flowering and during pod formation
Tomato	Nursery and 40 days after transplanting: seed treatment with 1 % for 12 hrs
Onion	0, 45 and 60 days after transplanting
Rose	At the time of pruning and budding
Jasmine	Bud initiation and setting
Vanilla	Dipping setts before planting

EFFECT OF PANCHAGAVYA

- Spraying with Panchagavya invariably produce bigger leaves and develop denser canopy. The photosynthetic system is activated for enhanced biological efficiency, enabling synthesis of maximum metabolites and photosynthates.
- **Stem** The trunk produces side shoots, which are sturdy and capable of carrying maximum fruits to maturity. Branching is comparatively high.
- **Roots** The rooting is profuse and dense. Further they remain fresh for a long time. The roots spread and grow into deeper layers were also observed. All such roots help maximum intake of nutrients and water.
- **Yield** There will be yield depression under normal circumstances, when the land is converted to organic farming from inorganic systems of culture. The key feature of Panchagavya is its efficacy to restore the yield level of all crops when the land is converted from inorganic cultural system to organic culture from the very first year. The harvest is advanced by 15 days in all the crops. It not only enhances the shelf life of vegetables, fruits and grains, but also improves the taste. By reducing or replacing costly chemical inputs, Panchagavya ensures higher profit and liberates the organic farmers from loan.
- **Drought Hardiness** A thin oily film is formed on the leaves and stems, thus reducing the

1. IFFVAMIRTHA

- **Cowdung 10 kg**
- **Cow urine.10 lit**
- **Pulse powder 2 kg**
- **Jagree. 2 kg**
- **Healthy soil 100 gm**

INGREDIANTS



200l water



10kg cow dung



2kg jaggery



2kg pulses flour



5-10l cow urine



Handful of forest soil

PREPARATION

Cow dung ,pulse powder, soil and jagree to be diluted separately and to be added one by one in 200 liters of water

To be kept under shades with tying the top with cotton cloth for proper air circulation for 7 days

- **To be stirred regularly two times in morning and**

FISH AMINO ACID

- **Fish waste 10 kg**
- **Jagree. 10 kg**
- **Thoroughly mixed and keep it for 20 days as air tight in plastic container**

Waste decomposer

WASTE DECOMPOSER IS NOT ONLY TO GEAR UP THE COMPOST PROCESS, BUT ALSO FOR:

SOIL APPLICATION

GROWTH PROMOTORS

DISEASE CONTROL

NUTRIENT DEFICIENCY CORRECTIONS

MINERAL SOLUBALISER

PREPARATION

Waste decomposer inoculant to be added in 200 liters of water

2 kg of jagree to be added to provide energy to the microbes

Keep it for 7 days

Stir regularly two times a day

CONCENTRATED ORGANIC MANURES

Oil-cakes	Nutrient content (%)		
	N	P2O5	K2O
Non edible oil-cakes			
Castor cake	4.3	1.8	1.3
Cotton seed cake (not decorticated)	3.9	1.8	1.6
Karanj cake	3.9	0.9	1.2
Mahua cake	2.5	0.8	1.2
Safflower cake (undecorticated)	4.9	1.4	1.2
Edible oil-cakes			
Coconut cake	3.0	1.9	1.8
Cotton seed cake (decorticated)	6.4	2.9	2.2
Groundnut cake	7.3	1.5	1.3
Linseed cake	4.9	1.4	1.3
Niger cake	4.7	1.8	1.3
Rape seed cake	5.2	1.8	1.2
Safflower cake (decorticated)	7.9	2.2	1.9
Sesamum cake	6.2	2.0	

PREPARATION AND USAGE OF GROUNDNUT CAKE SOLUTION

- **10 kg of groundnut cake to be soaked in 100 liters of water**
- **Adding one kg jaggery and 100 gms of Magnesium sulphate to enrich the microbial activities**
- **After 3 days of fermentation it can be used as soil trenching with 10 % solution**

GROUND NUT CAKE SOLUTION

- groundnut cake solution is a potent, nutrient-rich organic liquid fertilizer made by soaking and fermenting groundnut (peanut) cake in water, providing nitrogen, phosphorus, and potash for healthier, higher-yielding plants
- **Rich in Nutrients:** High in Nitrogen (N), Phosphorus (P), and Potash (K) for strong growth, roots, and flowers.
- **Boosts Flowering & Yield:** Promotes more blooms and higher fruit/vegetable production.
- **Improves Soil:** Enhances water retention and aeration.
- **Natural Pest Repellent:** Helps deter some pests.



GROWTH PROMOTING BIO AGENTS AND BIO FERTILIZERS

- **Pseudomonas**
- **Trichoderma viridi**
- **Mychoriza**
- **Asetobactor and Assospirillum**
- **Phospha bacteria**

PSEUDOMONAS

- ***Pseudomonas* bacteria act as plant growth promoters (PGPs) by enhancing nutrient uptake like phosphorus solubilisation, potash solubilisation and absorb Iron from the soil and make available to the plant and producing plant hormones (IAA), solubilizing minerals, and protecting plants from stress (biotic/abiotic) through compounds and induced systemic resistance (ISR)**

HOW TO USE

- To use *Pseudomonas fluorescents* for plants, apply it via seed treatment, seedling root dip, foliar spray, or soil application by mixing with organic manure, controlling root rot, boosting growth, and protecting against fungi,

TRICHODERMA VIRIDE

- **Trichoderma viride is a beneficial fungus used in agriculture as a biofungicide and plant growth promoter, controlling soil-borne diseases (like root rot, wilt) via parasitism/antibiosis, enhancing nutrient uptake (phosphates), boosting plant immunity, and improving soil health**

PLANTS RECOMMENDED FOR NURSERY IN NILGIRIS

Vettiver

Rose marry

Lemon gross

Acid lime

Stevia

Lippia

Cupressus

Tea

ROSEMARY



STEVIA



TEA



STEVIA



CYPRESS



THANK YOU

