



Pre-Monsoon Dry Sowing (PMDS) for **365 Days Green Cover for Soil Health** (From the field experiences of WASSAN and APCNF)

PMDS is a method for growing crops during non-farming seasons to ensure live crop cover on the land. Seeds are sown on days before the monsoon, days after the harvest, or periods in between crop seasons.



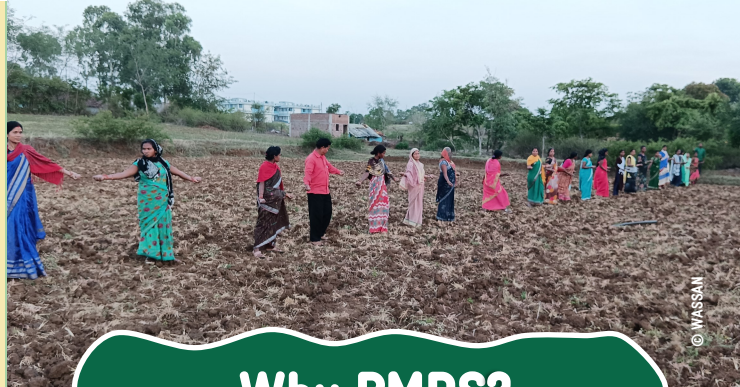
Dry Sowing for Soil Health

The Pre-Monsoon Dry Sowing method has evolved and been popularised as PMDS by the Andhra Pradesh Community Managed Natural Farming (APCNF) programme.

The method has been developed from the field experiences of the Watershed Support Services and Activities Network (WASSAN) and APCNF.

PMDS envisages sowing seeds of multiple crops much before the onset of monsoons, relying mostly on moisture from the pre-monsoon showers and other sources.

The crops, once established, cover the land with their canopy, protecting the soil from exposure to the sun and adding biomass to the soil.



Why PMDS?

Much of the rainfed lands will not have time to grow a green manure crop as the land preparation and sowing happens with the onset of monsoon rains.

PMDS uses the summer/pre-monsoon rains and moisture in the soil to grow diverse biomass to be incorporated into the soil.

There are several benefits of the PMDS method:

- **Increased Soil-Microbial Activity:** Cover crop plants release various compounds called root exudates into the soil. The diverse root exudates released into the soil help building up soil microbial activity.
- **Biomass Production:** The diverse crops grow quickly and produce a substantial amount of above-ground biomass (leaves and stems), which on decomposition contribute to organic matter addition.
- **Protection against Erosion:** As the crops cover soil, they protect the bare ground from erosion caused by wind or water runoff, thereby preserving the existing topsoil.
- **Weed Suppression:** The thick crop cover supports weed suppression.
- **Efficient use of Pre-Monsoon Rains for Soil Health:** PMDS uses the pre-monsoon rains for biomass production for the soil, thus adding to the rainfall use efficiency.



Dry sowing may also be practiced in several windows of opportunity after the kharif and rabi crop harvest, to extend soil cover for a longer period and for biomass production for soil health. Such practices use the residual moisture in the soil, or dew from the air to maintain crop growth. Supplemental irrigation enhances the biomass growth.

Pelletisation of Seeds

Seed Pelletisation is a process of applying a coat or layer of clay soil, dung and biochar (if available) on the seeds and the material soaked in *beejamrutham*. It makes the small and light seeds heavy and more uniform for seeding. It has several beneficial effects on seed germination.

- Protects the seed from harsh weather, ants, and birds, allowing it to remain viable for up to six months in the field.
- Seeds do not germinate until the required soil moisture is available. Seed pelletisation prevents quick germination and drying up due to lack of moisture.
- Seed treatment with *beejamrutham* and *ghanajeevamrutham* stimulates the microbial activity helping in early establishment of germinated plants.
- Pelleted seeds enable dry sowing, thus allowing farmers to take advantage of early rains.



Seed pelletisation can also be done mechanically.

Materials Required

- *Beejamrutham*
- Clay powder (approximately 10 to 20 kg of clay powder should be used for every 10 kg of seeds)
- *Ghanajeevamrutham* powder (approximately 5 to 10 kg of *ghanajeevamrutham* per 10 kg of seeds should be used)
- Biochar, if available

- Ash powder
- Jute gunny bag
- *Dravajeevamrutham*
- Water

Procedure

- Pelletisation should be done separately for each crop seed to avoid lumping of different seeds.
- After quickly soaking the seeds in *beejamrutham*, place the seeds on a jute gunny bag or cloth and sprinkle *beejamrutham*.
- Add a fine powder of clay to the seeds and shake the gunny bag continuously in roll-over motion until the first layer of clay coat forms on the seeds.
- Apply a fine powder of *ghanajeevamrutham* as the second layer, followed by sprinkling of water.
- Ash powder is used as the third layer. Sprinkle a small amount of water/*beejamrutham* alternately on each layer for proper adhesion to the next layer. Repeat this procedure about five to ten times to ensure the seed size becomes larger than the actual size.
- Repeat the process for each type of seed to get nice, round seed pellets of each crop.
- To differentiate the crops, colours may be used while mixing the seeds.





❶ Selection of seeds of diverse crops (about 12 kg per acre).



❷ Land preparation.



❸ Broadcasting of seeds/pelletised seeds.



❹ Preparation and application of *ghanajeevamrutham*.



❺ Covering the seeds/pellets with soil by running a wooden plank.



❻ Mulching the soil.



❼ Spraying *jeevamrutham* once in 15 days.



❽ Seed treatment with *jeevamrutham* and pelletisation.

Over 12 kg of seeds of multiple crops are used in PMDS. It is important to use seeds of different groups of crops, such as pulses, oilseeds, spices, and cereals like millets. The combination may be arrived at based on local availability and references.

Seed Mix Options in PMDS Crops

Leguminous Crops: Black Gram, Green Gram, Cowpea, Bengal Gram, Red Gram.

Green Manure Crops: Sunhemp, Daincha, Pillipesara, etc.

Oilseeds: Sesamum, Castor, Groundnut, Sunflower, etc.

Cereals and Millets: Maize, *Ragi*, *Jowar*, *Bajra*, *Korra*, etc.

Spices and Condiments: Fenugreek, Mustard, Coriander, etc.

