

**INTEGRATED WEED MANAGEMENT IN DIRECT-SOWN RICE (DSR) UNDER PIPP –STATE
PLAN
2023-24 to 2025-26**

1. Background:

In the rice agro-ecosystems ideal environment conditions are provided for optimal rice productivity are being exploited by the associated weeds. Irrespective of the method of rice establishment, weeds are a major impediment to rice production through their ability to compete for light and nutrition with the main crop.

Problems to be addressed Weed Management is one of the most important tools of cultivation to protect the crops from various weeds to reduce crop loss. Generally farmers always prefer to go for hand weeding, but manual weeding is not possible because of labour problem. The crop loss due to weed incidence increases and sometimes becomes more than the pest problem. Thus it is felt essential to assist the small & marginal farmers on use of pre and post emergence Herbicides which will create more awareness among farmers in the Direct Seeded Rice.

Weeds are major biotic constraints in most rice growing areas of the state, causing about 33% of yield loss. Problems associated with weeds in rice are mounting due to changes in establishment methods in response to the declining availability of labour and water. Direct sowing of rice reduces labour and water requirements.

There are 3 methods of direct-sown rice (DSR) i.e., dry seeding (sowing dry seeds in to dry soil), wet seeding (sowing of pre-germinated/sprouted seeds on wet puddled soils) and water seeding (seeds sown in to standing water). However, high weed infestation is a major constraint for adoption of DSR, as emerging seedlings in direct-sown fields are less competitive with concurrently emerged weeds and the initial flush of weeds cannot be controlled by maintaining water immediately after seeding. In DSR, at least 2-3 manual weeding by engaging more than 20 man days per hectare is required to keep the weed population below the threshold level. Therefore, herbicide-based weed control or combination of herbicide and machine/weeder are considered as alternative to manual-weeding and most economical way to manage weeds.

2. Aims & Objectives:

1. Strategy Integrated weed management (IWM) makes use of different forms of weed control which improves the management of weeds and reduces the development of herbicide resistance. This includes cultural management methods, manual, chemical and mechanical weed management.
2. Weeds can be controlled manually (hand weeding), mechanically (using weeders or other implements when crops are line sown), through cultural practices (use of weed competitive crop cultivars, stale seed beds, mulching, crop rotation) and /or chemically (using herbicides). Chemical management of weeds can be done at three stages: Pre-plant (burn-down), pre-emergence and post-emergence.

3. Pre-plant burn-down herbicides are non-selective and are applied before you sow the crop to kill the existing weeds. These herbicides are especially important under zero till/ conservation agriculture based systems. Pre-emergence herbicides are applied after crop seeding but prior to emergence of weeds, 1-3 days after seeding or transplanting, by ensuring adequate moisture at the time of spray. Post-emergent herbicides are applied after the crop and weeds are emerged, generally at 3-4 leaf stage. Appropriate herbicides for specific crop have been recommended by the State Level Expert Committee for farmers use.
4. The main objectives of weed management are to improve the soil conditions by reducing evaporation from the soil surface, improve infiltration of rain or surface water, reduce runoff to maintain ridges or beds on which the crop is grown and to reduce competition of weeds for light, nutrients and water and ultimately to increase yield.
5. To take up crop protection activity on weed management
6. To reduce crop loss from the effect of weeds.

TABLE -1

Expert Committee recommendation of Herbicides (2021-22)

Name of the Crops	Recommendation of Herbicide by CIBRC/OUAT		Dosage /ha a.i. (gm/Kg)/ ha	Formulation /ha	Dilution In Water (Litre/ha)	Remarks
Paddy (Direct Seeded)	Fenoxaprop-p-ethyl 6.7% w/w EC	CIBRC/OUAT	56.6-60.38g	812.5 - 875 ml	500	post-emergence (21-25 DAT)
	Paraquat dichloride 24% SL	CIBRC/OUAT	0.3-0.8 kg	1.25-3.5 ltr	500	[pre-plant (minimum/Zero tillage) before sowing/transplanting for controlling standing weeds]
	Azimsulfuron 50% DF	CIBRC/OUAT	35 g	70 g	500	post-emergence (20-25 DAS)
	Bispyribac Sodium 10% SC	CIBRC/OUAT	20 g	200 ml	500	post-emergence (20-30 DAS)
	Cyhalofop Butyl 10% EC	CIBRC/OUAT	75-80 g	0.75-0.80ltr	500	post-emergence (21-25 DAT)
	Oxyflourfen 23.5% EC	CIBRC/OUAT	150-240 g	650-1000 ml	500	Pre emergence 3-5 DAT/ 24-48 hr after cessation of rain for direct sown Paddy
Paddy (Direct sown puddled)	Pretilachlor 30.7% EC	CIBRC/OUAT	0.45-0.60kg.	1.5-2.0 ltr.	500	Pre emergence 3-5 DAT/ 24-48 hr after cessation of rain for direct sown Paddy
	Pendimethalin 30% EC	CIBRC/OUAT	Light to Heavy soil 1-1.5kg	3.3 –5 Ltrs.	500	Pre emergence 3-5 DAT/ 24-48 hr after cessation of rain for direct sown Paddy
	Oxyflourfen 0.35% GR	CIBRC/OUAT	100-150 g	30-40 kg.	Sand mix 50 Kg	Pre emergence 3-5 DAT/ 24-48 hr after cessation of rain for direct sown Paddy

3. Target Beneficiary

Small & Marginal Farmers having Farmers ID and growing Direct Sown Rice (DSR) paddy and not covered under any Govt. ongoing scheme during the implementation period is eligible get to financial assistance for Integrated Weed Management Operation through DBT.

The small and marginal farmers who shall do manual weeding/ mechanical weeding/ or using chemical herbicides for weed control in his/her paddy field.

The interested beneficiary will be selected by VAW in consultation with AAO preferably from a Continuous/contiguous patch of 20 ha DSR paddy field in rain fed areas and issue online permit for purchase the Herbicides through <http://dbtinputodisha.nic.in> portal runs by NIC Odisha .

4. Management

1. The beneficiary are (Small & Marginal Farmer having Farmer ID) as indicated above to be selected by the VAWs in consultation with AAOs from a patch of minimum 20 ha of DSR paddy in the cropping season preferably in the rain fed areas.
2. The beneficiary to conduct any one of the IWM operation which includes a. Manual weed management b. Mechanical weed management c. Chemicals weed management. For chemical weed management the farmer has to purchase the registered herbicides as per his choice from the registered pesticide dealers of the block. The list of herbicides also given in TABLE-1.
3. VAW to certify 100% beneficiary who has completed the DSR practice and IWM operation in their paddy field and submit the list to concerned BAO/AAO for on-line entry.
4. The list of such selected beneficiary will be handed over to concerned CDAOs by the BAO/AAO within the cropping season as per the time frame.
5. The VAW shall issue online permit to the beneficiaries for purchase the Herbicides through <http://dbtinputodisha.nic.in> portal runs by NIC Odisha.
6. After confirmation of purchase by the dealer and after generation of online Invoice the BAO/AAO shall approve the list and forward to the CDAO for transfer of the financial assistance to the farmer through DBT within 3 days.

5. Budget

Sl No	Component	Target Area in ha	Funds in Lakh Rs
1	A farmer will be given assistance for a maximum of Rs 1000/ per ha or 50 % of the cost of the herbicide whichever is less The subsidy shall be paid to the eligible farmer after purchase of herbicide through DBT One farmer can get maximum up to 2 ha	1 st year 30,000	300.00
		2 nd year 35,000	350.00
		3 rd year 40,000	400.00
	Total for 3 Years	1,05,000	1050.00

6. Time frame:

Selection of Beneficiary	July
Confirmation of IWM operation	August-September
Completion of Payment	September-October

7. Intended Scheme/ Programme Outcome

After third year of the implementation there will be awareness among the farmers on Integrated weed management and they will get the higher yield in the DSR due to weed management. Around 105000 ha of DSR area will be covered under the weed management & farmers will get benefitted by increased in yield up to 33% & also by reduction in cost of cultivation by reducing labour cost.

As approved in the OSWAS File No. DAFP-SPIII-MISC-0014-2022:2023-24 at noting 41


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