

## NEW HERBICIDE FOR EFFECTIVE CONTROL OF GRASS WEEDS IN DIRECT SEEDED RICE

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Grass weeds, particularly *Echinochloa* sp. and *Ischaemum rugosum* have been responsible for considerable yield losses in most rice growing areas. Among the worst affected are high potential rice growing areas like Polonnaruwa, Mahaweli systems, Rajangana where rice is grown under assured irrigation.

Since the advent of propanil popularly known as 'Bajiri thel', in many *Echinochloa* infested areas, farmers have depended on this herbicide for grass weed control. Together with MCPA for controlling broad-leaved weeds, these herbicides have dominated the rice weed control scene throughout the past 3-4 decades. Among the most important characteristics of propanil in respect of weed control in rice are:

- wide spectrum of weed control (Propanil controls grasses, some sedges and broad-leaved weeds);
- high reliability (Propanil is effective in a wide range of field conditions); and

- low phytotoxicity (High selectivity).

At the same time propanil also possesses certain disadvantages. The more important drawbacks are :

- high cost and ever escalating prices ( farmers tend to apply lower amounts than recommended dosage);
- requirement of high rate of application (8 - 10 lit./ ha.);
- very narrow application window (to be effective propanil has to be applied at the 2 - 3 leaf stage of grass weeds);
- contact action ( good spray coverage of the foliage is critical for effective control and draining the field is essential to control weeds);
- washing - off, should the rain occurs within 0 - 5 hours after the application of the herbicide;
- lack of residual effect enabling subsequent weed flushes to escape unharmed; and
- need to impound water 2-3 days after application of herbicide.

Thus, the ideal herbicide should have the good properties of propanil and be devoid of the disadvantages mentioned above. During the past decade the pesticide industry as well as the agricultural researches attempted to meet this demand by developing mixtures of herbicides containing both pre and post - emergent herbicides.

This led to the appearance of a range of new herbicides in the market. The high expectations placed on the new herbicides were never realized as effective weed control using pre-emergent herbicides was possible only if proper post-plant weed control was practised and the land properly levelled. As excellent post-plant weed control and proper field levelling are seldom practised by the rice farmers, the newly recommended formulated herbicide mixtures were never successful in capturing the place of propanil in the market. Acceptance of mixtures to a certain degree was found in the southern province. Thus, what was needed was a new product that could be more effective under the diverse agro-ecological conditions prevailing in Sri Lanka.

The new product developed recently is an early to late post-emergent herbicide and chemically categorized as phenoxy propanate. The common name of

the chemical is Fenoxyprop-p-ethyl and is marketed under the trade name of Whipsuper 4.5% EW.

This herbicide is highly toxic to annual grasses, but is not 'hard' on rice. It possesses systemic action and is rapidly translocated through foliage to all parts of a rapidly growing plants. Thus, spray coverage is not a vital factor in achieving good control of weeds.

This is one of the very few herbicides selective on rice that can control *Echinochloa* sp. in a fairly advanced stages of growth.

The application window is 14 - 35 days after sowing or transplanting. This wide application window will be advantageous to the farmers during the *Maha* season as continuous rains sometimes render it impossible to apply a herbicide on time. Unlike propanil which requires a minimum of 5 hours rain free period after the application, the new product requires only a 1- 2 hour rain free period for absorption and translocation.

The product is applied within 14 - 35 days after sowing of rice. By the second week almost all *Echinochloa* plants likely to emerge would have produced foliage and will get killed by this herbicide. This enables the farmers to overcome

the problem of the emergence of new flushes of weeds.

Rate requirement of the product is extremely low (300 - 350 ml./ha.). It is environmentally friendly and is safe to the applicator due to the excellent toxicological properties.

Farmers should note the following when using this product.

1. It is preferable to drain the field before the application to expose the foliage of the weeds.
2. The herbicide is highly effective at very low rates of application. The rate recommended may seem too small to control weeds. However, farmers must suppress the urge to "add a little more to ensure good control."
3. It must be borne in mind that the new herbicide requires about 7 - 10 days to show symptoms on treated weeds. Do not hurry to apply another herbicide thinking that the money was wasted. The first indication of damage to the weeds are chlorosis of young leaves followed by wilting. Annual grasses suffer damage at the apical meristem.
4. Remember that this is a grass killer and has no effect on the sedges and broad-leaved weeds.
5. Never tank-mix Fenoxypop with another herbicide.
6. Water may be impounded 2 days after application of herbicide.
7. This herbicide should not be applied within the first 14 days of sowing.

### **USE OF BIOGAS SLURRY IN MUSHROOM CULTURE**

Biogas slurry mixed with rice hull is a vary good medium for culturing mushrooms. This increases the mushroom yields as well as reducing production costs. Moreover, the used medium left over after the mushroom crop is harvested can be used as a feedstuff for livestock and poultry, since it has a relatively high crude protein and fat content.

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