

## **Research Article**

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## Integrated Weed Management in Rabi Sweet Corn (Zea mays L. var. Saccharata)

A feld experiment was conducted during *rabi* 2010-11 at Junagadh (Gujarat, India) to fnd out most effcient *rabi* Zea mays saccharata

(PRE) herbicides viz., atrazine, pendimethalin and oxadiargyl were combined either with hand weeding (HW) and

The weed fora of the experimental site constituted *Digera arvensis Cyperus rotundus*, *Brachiaria* ., *Asphodelus tenuifolius*, *Indigofera glandulosa*, *Amaranthus viridis*, *Acanthospermum hispidum*, *Panicum colonum*, *Launaea nudicaulis*, *Euphorbia hirta*, *Chenopodium album*, *Portulaca oleracea*, *Dactyloctenium aegyptium* Celosia argentea. The results revealed that physical methods viz., weed free, HW and IC twice at 15 and 30 days after sowing (DAS) as well as integrated methods viz., atrazine @ 0.5 kg a.i. /ha as PRE+HW and IC at 30 DAS and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS signif cantly enhanced growth and yield attributes ultimately higher cob and fodder yields over unweeded check. The treatments viz., weed free, HW and IC twice at 15 and 30 DAS, atrazine @ 0.5 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS, and pendimethalin @ 0.9 kg a.i. /ha as PRE+HW and IC at 30 DAS and at harvest, dry weight of weed at harvest with lower weed index and higher weed control effciency and herbicidal effciency index. These

**Ke**  $\bullet$  **d** : Sweet corn; *Z a a*, L. var., *acc a*, *a a* Sturt; Atrazine; Pendimethalin; Oxadiargyl, 2, 4-D.

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Maize is considered as the "Queen of Cereals". Being a  $C_4$  plant, it is capable to utilize solar radiation more e ciently even at higher radiation intensity. In Indian agriculture, maize assumes a special signi cance on account of its utilization as food, feed and fodder besides several industrial uses. Sweet corn (Z = a, L. var., *acc*, *a*, *a*, *a* Sturt), also called Indian corn, sugar corn and pole corn, is a variety of maize with a high sugar content. Nature of weed problem in, *ab* maize is quite di erent from that of the rainy season maize. In the rainy

of Agronomy, Junagadh Agricultural University, Junagadh (Gujarat, India) during, ab -2010-11. e experimental soil was clayey in texture and low in available N and P, and moderate in available potash. Sweet corn variety 'Sugar-75' was used in the experiment. e temperature ranged from 9.7 to 20.6°C during, ab season. e crop was sown on 11

To evolve integrated weed management, pre-emergence (PRE) herbicides viz., atrazine, pendimethalin and oxadiargyl were combined either with hand weeding (HW) and interculturing (IC) or with postemergence (POST) herbicide 2, 4-D (SS) to evolve integrated weed management. e experiment comprised nine treatments, namely, (1) Atrazine @ 0.5 kg a.i./ha as PRE+HW & IC at 30 days a er sowing (DAS), (2) Pendimethalin @ 0.9 kg a.i./ha as PRE+HW & IC at 30 DAS, (3) Oxadiargyl @ 90 g a.i./ha as PRE+HW & IC at 30 DAS, (4) Atrazine @ 0.5 kg a.i./ha as PRE+2,4-D (SS) @ 0.5 kg a.i./ha as POST at 30 DAS, (5) Pendimethalin @ 0.9 kg a.i./ha as PRE+2,4-D (SS) @ 0.5 kg a.i./ha as POST at 30 DAS, (6) Oxadiargyl @ 90 g a.i./ha as PRE+2,4-D (SS) @ 0.5 kg a.i./ha as POST at 30 DAS, (7) HW & IC twice at 15 & 30 DAS, (8) weed free and (9) weedy check, were replicated thrice in randomized block design.

Pre-emergence herbicides were applied next day of sowing and post-emergence herbicide was sprayed at 30 DAS. e spraying was done using knapsack sprayer with at fan nozzle keeping spray volume of 500 L/ha. Weeding was done by labours and interculturing was done by bullock drawn harrow in between two rows of the crop. In manual weed control treatments, weeds were uprooted and removed at 30 DAS as per treatment. In weed free plots, the weeds were removed manually a er every seven days for ensuring complete weed free condition.

<sup>th</sup> December with the seed rate of 15 kg/ha at spacing of 60 cm x 20 cm. Standard package of practices was followed throughout the cropping season. e crop was harvested on 27<sup>th</sup> March.

B:C ratio (gross returns divided by cost of cultivation) were calculated using prevailing market price of inputs (including treatments), labour and produce for assessing the economic viability of treatments. **Re** 1 **a d Di c i** 

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of plant nutrients and moisture by weeds. ese ndings are in close conformity with those reported by Sinha et al., Kolage et al., Mandal et al., Kamble et al. and Deshmukh et al. [7-11].

## Weed ha ame e

e weed management treatments signi cantly in uenced the weed population (Table 2). e weed free check recorded the lowest weed population. HW & IC at 15 & 30 DAS also recorded signi cantly lower weed population, which remained statistically at par with atrazine @ 0.5 kg a.i./ha as PRE+HW & IC at 30 DAS and pendimethalin @ 0.9 kg a.i./ha as PRE+HW & IC at 30 DAS. Except weed free, the lowest dry