**Herbicidal management of weeds in irrigated green gram (*Vigna radiata* (L.) Wilczek)**

**Abstract**

Uncontrolled weed growth significantly reduces the productivity of short-duration irrigated green gram, necessitating timely and effective weed management. This study aimed to identify a sustainable herbicidal strategy for green gram by evaluating the efficacy, phytotoxic effects, yield impact, and economic viability of different herbicide treatments. The study compared pre-emergence (PE) applications of Pendimethalin as well as early post-emergence (EPoE) applications (20 DAS) of Imazethapyr + quizalofop ethyl and Sodium acifluorfen + Clodinafop propargyl. Among the treatments, PE Pendimethlin followed by (*fb*) and Sodium acifluorfen + Clodinafop propargyl achieved significantly higher weed control efficiencies of 87.9%, (30 DAS) and 83.6 (45 DAS). Although these herbicide combinations initially induced oxidative stress and minor phytotoxicity, the green gram plants fully recovered within 15 days of application. These treatments led to substantial yield improvements (33%) and higher net returns (48.5%) compared to the weedy check. Thus, Application of PE Pendimethalin followed by EPoE Sodium Acifluorfen + Clodinafop propargyl emerge as promising weed management strategies for irrigated green gram offering both agronomic and economic benefits.