

EFFICIENT USE OF BRACKISH GROUNDWATER THROUGH CULTURAL APPROACH

Tahir Hussain, M. Akhtar Abbas, S. Naheed Akhtar and G. Jilani*

*A field experiment was carried out to explore the cultural methods for efficient use of brackish groundwater in rice-wheat cropping system. Tubewell water having EC 2.3 dS m⁻¹, SAR 9.8 (mm L⁻¹)^{1/2} and RSC 7.6 me L⁻¹ was used to irrigate the rice crop and follow up wheat crop was grown on same layout with canal water. Two green manuring crops, *Sesbania aculeata* (GM₁) and *Sesbania rostrata* (GM₂) were grown for three different periods viz. at last irrigation to wheat, just after wheat harvest with minimum tillage or with optimum land preparation after the wheat harvest before rice cultivation. The results indicated that *S. rostrata* (GM₂) was slightly better than *S. aculeata* in terms of rice and wheat yields which was due to the fact that *S. rostrata* is a stem nodulating sp. and so contributed more nitrogen. Among different sowing times of GM, the best one was the sowing of GM with minimum tillage as more number of GM plants and higher GM biomass were obtained. Soil characteristics were least changed with brackish groundwater irrigation under the treatments receiving GM *S. rostrata* grown with minimum or optimum tillage.*

INTRODUCTION

Shortage of irrigation water is a major constraint to agriculture in Pakistan. Due to limited supply of irrigation water and lack of management practices 11.2 million hectare are lying as culturable waste lands (Federal Bureau of Statistics, 1987). The scarcity of good

they can also minimize the hazardous effects of saline groundwater as they release CO₂ in soil, which has direct effect on the solubilization of CaCO₃. Acharya and Abrol (1978) reported that dhancha helped in reclamation of a sodic soil and contributed to saving of 60-80 kg N ha⁻¹ to the subsequent rice crop. They also increase the green manure soil N, concentrate P and

application
er southern
soil Sci. and

rogen inputs
onald. R.N.,
Nitrogen in
Press. New

J. R., 1987.
calcium cy-
ammonium
ropics. Fert.

of Irrigation
Nitrogen Up-
Accepted).

Mineraliza-
lizers in soil.

ter for crops
er Resources,
h Council,