

**SULPHUR MANAGEMENT IN URDBEAN (*VIGNA MUNGO*)-INDIAN MUSTARD (*BRASSICA JUNCEA*) CROPPING SYSTEM IN VERTISOLS**

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**Abstract:** A field experiment was conducted during two consecutive seasons of *kharif* and *rabi* (2005-06 & 2006-07) at Agricultural Research Station, Ummadganj, Kota to evaluate the optimum dose of sulphur for increasing the productivity and profitability of urdbean and mustard under urdbean-mustard cropping sequence. The experiment was comprised of 3 levels of sulphur (0, 20 and 40 kg/ha) to each urdbean and mustard and consisted of 9 treatment combinations (U<sub>0</sub>-M<sub>0</sub>, U<sub>0</sub>-M<sub>20</sub>, U<sub>0</sub>-M<sub>40</sub>, U<sub>20</sub>-M<sub>0</sub>, U<sub>20</sub>-M<sub>20</sub>, U<sub>20</sub>-M<sub>40</sub>, U<sub>40</sub>-M<sub>0</sub>, U<sub>40</sub>-M<sub>20</sub> and U<sub>40</sub>-M<sub>40</sub> kg/ha) were tested in randomized block design with four replications. Sulphur fertilization to urdbean 40 kg/ha significantly increased plant height/plant, branches/plant, nodules/plant, nodule dry weight, number of pods/plant, seeds/pod and test weight, seed yield, straw yield, net return and B: C ratio over no sulphur application while it remained statistically on par with 20 kg S/ha. The respective increase was in the magnitude of 7.7, 33.1, 39.5, 23.6, 35.6, 33.9, 8.4, 13.6, 16.2, 55.0 and 9.6 % over no sulphur. Maximum and significantly higher plant height, primary and secondary branches/plant, siliquae/plant, length of siliqua, seeds/siliqua, test weight, seed, stover yield, net return and B: C ratio were recorded in mustard with application of U<sub>40</sub>-M<sub>40</sub> kg S/ha remained on par with U<sub>20</sub>-M<sub>40</sub> and U<sub>40</sub>-M<sub>20</sub> kg/ha over no sulphur, U<sub>0</sub>-M<sub>20</sub>, U<sub>0</sub>-M<sub>40</sub>, U<sub>20</sub>-M<sub>20</sub> and U<sub>40</sub>-M<sub>20</sub>. Treatment U<sub>20</sub>-M<sub>40</sub> kg S/ha recorded significantly higher urdbean equivalent yield to the tune of 1107 kg/ha, net return ₹ 16267/ha, total S uptake 14.21 kg/ha and higher buildup of S 7.49 kg/ha over U<sub>0</sub>-M<sub>0</sub> (no sulphur).

**Keywords:** Cropping system, Mustard, Net return, Sulphur, Uptake, Urdbean, Yield

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