Research Paper

ADVANCE RESEARCH JOURNAL OF
C R P
IMPROVEMENT
Volume 3 | Issue 1 | June, 2012 : 1-4

Influence of various levels of nitrogen, cultivars and weed control treatments on quality traits of canola *gobhi sarson* (*Brassica napus* L.)

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ABSTRACT : The field experiment was conducted to study the effect of various nitrogen levels, cultivars and weed control treatments on quality traits and smothering potential of canola gobhi sarson (*Brassica napus* L.) at Punjab Agricultural University, Ludhiana during the *Rabi* season of 2008-09. The experiment was conducted in split plot design and comprised of 16 treatment combinations *viz.,* four nitrogen levels as main plot treatments (100, 125, 150 and 175 kg N/ha), two cultivars (GSC 6 and Hyola PAC 401) and two weed control methods (weeded and unweeded control) as sub plot treatments, with three replications. The crop registered significantly higher seed yield, oil yield and protein content with the application of 125 kg N/ha, with further increase in nitrogen up to 150 and 175 kg N/ha the increase was non-significant. There was no difference in competitive ability of both cultivars and Hyola PAC 401 yielded higher because of its higher yield potential than GSC 6. Protein and oil content were inversely proportional with each other with increase in nitrogen level. Oil content decreased with increase in nitrogen level recording maximum value at 100 kg N/ha.

Key Words : *Brassica napus*, Canola, Gobhi sarson, Oil content, Protein content

How to cite this paper : Shergill, Lovreet Singh and Gill, B.S. (2012). Influence of various levels of nitrogen, cultivars and weed control treatments on quality traits of canola *gobhi sarson* (*Brassica napus* L.), *Adv. Res. J. Crop Improv.,* **3** (1) : 1-4.

Paper History : Received : *08.11.2011;* **Revised :** *10.02.2012;* **Accepted :** *15.03.2012*

Oilseeds play vital role in Indian economy, accounting 5per cent of gross national product and 10 per cent of the value of the agricultural product. Rapeseed and mustard are second most important group of oilseed crops in India after groundnut and contribute a major share to the vegetable fat economy of the country. In India, during 2009-2010, these crops were grown in an area of 5.59 million hectare with a production of about 6.61 million tonnes, whereas in Punjab, the figures are 30 thousand hectare and 39 thousand tonnes, respectively (Anonymous, 2011). The per capita availability of edible oil in India is 7.6 kg per annum as against the requirement of world health organization as 11.0 kg per annum. It is estimated that nearly 60 million tonnes of total edible requirement would be required 2020 AD (Hedge, 2000). The low productivity of these crops under Indian sub-continent is in fact due to their cultivation on inherently low fertility soils with poor management practices. These are not grown as main crop in most of the area cultivated. Recommended fertilizers are not applied to the crop. So there is need to increase the yield of oilseeds. Rapeseed and mustards oil is of low quality due to the presence of high concentration of erucic acid and glucosinolates. Canola stands for Canadian Oil Low Acid. Canola (*Brassica napus* L.) is a genetically improved version of rapeseed and is low in both erucic acid and glucosinolates which distinguish it from ordinary rapeseed. Besides, it has the lowest level of saturated and highest level of mono and polyunsaturated fatty acids, which reduce cholesterol level. Therefore, canola is gaining more popularity among farmers. The standard requirements for an oil to be canola is that it has 2 per cent or less of Erucic acid of the total fatty acids and less than 30 micromoles/g of glucosinolates in the oil free meal. It is also called double zero ('00') crop and swede rape. Fertilizer management has an important role to play for increasing its productivity, which can be realised by providing plant nutrients in balance amount along with suitable agronomic package to the crop. So, the experiment was conducted with the objective to study the effect of nitrogen levels, cultivars and weed control methods on quality of canola *gobhi sarson.*