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# Productivity enhancement of Niger through advancement of sowing time: A zero cost input technology for stress sites of Northern hill zone of Chhattisgarh

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Niger (*Guizotia abyssinica cass*) which is a cash crop is also known as lifeline of tribal community. This crop sustains production even under poor soil fertility, moisture availability and management conditions. Under traditional practices of cultivation, very low yield is usually obtained because of extra ordinary late sowing i.e. sowing in last week of August to 1<sup>st</sup> week of September and also the use of local seed. The present study was carried out at Pushprajgarh block of Anuppur district. Three dates of sowing was taken into the study i.e. between 25 August to 5 September, 10 August to 20 August and 25 July to 5 August for niger. The results of the study showed highest increase (175%) in yield when the sowing was done between 25 July to 5 August (T3) followed by T2 (108%) when date of sowing was between 10 August to 20 August over farmers practice (T1: late sowing between 25 August to 5 September).

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**Keyword:** Niger, sowing time, productivity

### Introduction

Niger (*Guizotia abyssinica cass*) is a cash crop of tribal farmers of Northern hill zone of chhatishgarh region. This is eco friendly, minor oil seed crop, known as lifeline of tribal community. It plays a vital role in their household economy even though it is little cared due to agro-socio-eco stresses of tribes. This crop has potential for sustainable production even under poor soil fertility, moisture availability and management conditions. Under traditional practices of cultivation very low yield is realized in tune of 107 kg/ha with net economic losses of -1686 Rs. / ha to the growers. This loss is in hidden form to the tribal farmers as all agronomical operations are carried by family

labourers. On the basis of the initial survey work carried out in pushprajgarh block alongwith study of rainfall pattern of 10 years (1992-2001) and cropping pattern of Niger, it has been find out that among several causes of low productivity, extra ordinary late sowing i.e. sowing in last week of August to 1<sup>st</sup> week of September and use of local seed containing approx. 25% cuscuta weed seed are identified as main causes of low productivity of this crop.

Looking to the problem faced by tribes and to explore the Possibilities for improvement in productivity a comprehensive critical analysis of Niger cultivation has been carried out through On Farm Testing along with other extension Programme of Krishi Vigyan kendra, Shahdol

during 2000-01 to 2005 06 at Pushprajgarh block of Anuppur district, where 85% (15000 ha) of the district Niger is cultivated.

### Material and Method

The study is based on Primary data collected by the scientist OFTs (69 Nos.) on Niger crop during 2000-2001 to 2005-2006 on The soil type of the demonstration area was red sandy loam with undulating boulder type soil. The NPK status of the soil was very low, low and low, respectively. The economics of improved technology and prevailing farmers practice were studied taking into consideration on the prevailing cost of inputs and prices of output in respective years and areas.

The superiority of IT over FP was assessed mainly in terms of vegetative and reproductive characters, yield (qt. /ha) cost of cultivation, net return and B/C ratio.

### Results and Discussion

Critical analysis of technologies as indicated in Table- 1 revealed that highest increase (175%) in yield under T3 date of sowing between 25 July to 5 August followed by T2 (108%) date of sowing between 10 August to 20 August over farmers practice (T1: late sowing between 25 August to 5 September). Similar findings have been reported by Sharma (1993) <sup>[1]</sup> and Anonymous (2001-02) <sup>[2]</sup>.

**Table 1:** Effect of sowing time on Niger productivity, vegetative and reproductive character

S. No	Year/ Particulars	No. of OFTs	Different date of sowing		
			T1 (Farmers practice)	T2 (Improved Practice)	T3 (Improved Practice)
			Between 25 Aug.-5 sept.	10 Aug. – 20 Aug	25 July -5 Aug.
<b>(A) Productivity (kg/ha.)</b>					
1.	2000-01	6	102	250	280
2.	2001-02	6	109	246	294
3.	2002-03	12	99	173	283
4.	2003-04	24	118	170	264
5.	2004-05	13	108	176	264
6.	2005-06	8	110	328	393
Average		6.9	107.60	223.83	296.16
<b>(B) Vegetative and reproductive characters</b>					
Plant height (cm)		-	30	75	115
Branches / plant		-	2	4	8
No. of capitals / plant		-	4	28	75
1000 seed weight (g)		-	2.80	3.11	3.50

**Table 2:** Economics of Niger production under different date of sowing

S. NO	Particulars	Different date of sowing		
		T1 (Farmers practice)	T2 (Improved Practice)	T3 (Improved Practice)
		Between 25 August.-5 Sept.	10 August – 20 August	25 July -5 August
1.	Av. Productivity (kg/ha)	107.60	223.89	296.16
2.	% increase over farmer practice	-	108.02	175.24
3.	Cost of cultivation (Rs. /ha.)	3300	3150	3030
4.	Gross return (Rs. /ha.)	1614	3357	4442.00
5.	Net return (Rs. /ha.)	(-) 1686	207	1412
6.	B:C ratio	0.48	1.06	1.46

Timely sowing of Niger a zero cost based technological input gave 175% higher yield and gross return over farmers practice late sown with 8.2% deduction in cost of cultivation. Before adoption of technology of timely sowing, farmers realized net loss of Rs. 1686/- per ha. After

adoption of technology of timely sowing they earn net profit of Rs.1412 per ha with B.C ratio of 1.46. In other words change in sowing time over farmers practice gave a total profit of Rs. 3096 per hectare.

### **Conclusion**

Zero cost based technology on timely sowing i.e. last week July to first week of August can be recommended to the poor tribal farmers for getting the maximum yield and net return in Niger cultivation, whereas, full package of practices along with timely sowing can also be recommended to the resource rich farmers.

### **Reference**

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