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JNS-30 : A NEW RELEASED NIGER VARIETY FOR MADHYA PRADESH STATE, INDIA

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Abstract

In Madhya Pradesh, niger is a minor but one of the important *kharif* oil seed crop mainly confined for tribal areas. The state accounts for approximately 29.5 percent of total niger area of India and about 22.5 percent of the total production of the country.

JNS-30, a newly released variety for Madhya Pradesh will play an important role in increasing the production. It is a selection from golgunda germplasm . On the basis of three years testing in AICRP Trials, it recorded 598 Kg/ha grain yield which is 27 percent higher than a national check IGP-67. It showed 17.14 percent oil yield superiority over National check. The average oil content 34.5 percent, test weight 4.1g, capitula per plant 42, maturity period 96 days was found. Tolerance to cercospora and alternaria leaf spot was observed in the field.

Key words : Niger [*Guizotia abyssinica* (L.F.) Cass.], protein, oil content, grain yield.

Introduction

Niger (*Guizotia abyssinica* L.f cass.) is an important minor oil seed crop grown in tropical & sub tropical countries like India, Ethiopia, East Africa, West Indies & Zimbabwe. India & Ethiopia are two major producer in the world. It's cultivation in India is confined mainly to the states of Madhya Pradesh, Chhattisgarh, Orissa and Maharashtra. In Madhya Pradesh, it is known as jagni or ramtil. The average niger production of Madhya Pradesh is 233 Kg/ha as against the 297 Kg/ha of national average. This gap is to be filled by developing high yielding varieties and simultaneously by transferring the improved production technologies.

Materials and Methods

JNS-30 was doveloped by selection from golgunda germplasm maintained at JNKVV, Zonal Agricultural Research Station, Chhindwara, Madhya Pradesh by using mass selection breeding method. The genotype after tested in local station trials was sent to AICRP trials during 2008-09. It was tested in Initial Varietal Trial (2008-09), Advance Varietal Trial (2009-10 & 2010-2011). The recommended package of practices was followed while conducting the trial to raise the healthy crop. The yield data was analyzed by Randomized block design as suggested by Panse & Sukhatme (1985).

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Results and Discussion

The genotype JNS-30 was included for testing in AICRP trials in 2008-09. In Initial Varietal Trial at ten locations, it yielded 659 Kg/ha seed against the 465 Kg/ha by national check IGP-76, which 41.7 percent higher (Anonymous, 2009). In Advance Varietal Trial first year, it was tested at eleven locations in which it recorded 588 Kg/ha seed yield which was 20 percent more than the national check (Anonymous, 2010). During 2010-11, in Advance Varietal Trial second year , it observed seed yield 598 Kg/ha with increase of 27 percent over the national check.

Regarding oil yield in IVT, it recorded 218 Kg per ha, in AVT first year 200 Kg per ha with 25 percent increase and in AVT second year 199 Kg/ha with 4.2 percent increase over national check IGP-76 (Anonymous, 2008-09, 2009-10, 2010-11). Over all the oil yield showed 205.7 Kg/ha with increase of 14.6 percent over national check. JNS-30 recorded 55.3 days to 50% flowering, 96.3 days to physiological maturity, 112.7 cm plant height, 8.6 number of branches per plant, 42.0 capsules per plant, 4.1g weight per 1000 seed weight and 34.5% oil. It has green, narrow shaped leaves, yellow flower, and purple pigmentation on stem (Anonymous,

Table 1 : Summary of seed yield (kg/ha) of coordinated trials -*Kharif* 2008-09 to 2010-11.
Production condition: Kharif rainfed **Adaptability :** Madhya Pradesh **Name of Variety:** JNS 30

Items	Year of testing	No. of trials/ locations	Proposed variety JNS-30	Check variety IGP –76 (NC)	Check variety JNS –9	
					(LC)	C.D.
Mean seed yield (kg/ha)	1st Year 2008-09 IVT	10	**659**	465	497	30.8
	2nd Year 2009-10 AVT	11	**588**	490	465	61.7
	3rd Year 2010-11 AVT	8	**547**	459	495	22.7
	Mean (over 3 years)	29	**598**	471.3	511.7	-
	2008-2009			+41.7	+32.6	-
	2009-2010			+20.0	+26.4	-
	2010-2011			+19.1	+10.5	
Frequency to top in group	2008-09		**4/10**	4/10	1/10	-
	2009-10		**1/11**	3/11	0/11	-
	2010-11		**0/8**	1/8	0/8	-

Table 2 : Summary of oil yield (Kg/ha) of coordinated trials -*Kharif* 2008-09 to 2010-11 (AICRP trials).
Production condition: Kharif rainfed **Adaptability :** Madhya Pradesh **Name of proposed variety:** JNS-30

Items	Year of testing	No. of trials/ locations	Proposed variety JNS-30	Check variety IGP – 76(NC)	Check variety JNS-9(LC)
Mean oil yield (kg/ha)	1st Year 2008-09 IVT	11	**218**	-	162
	2nd Year 2009-10 AVT	12	**200**	160	152
	3rd Year 2010-11 AVT	8	**199**	191	205
	Mean (over 3 years)	31	**205.7**	175.5**	173.0
% increase /decrease over checks/ qualifying entries	Weighted Mean	-	**206.1**	172.4	169.2
	2008-2009	-	**-**	-	+34.6
	2009-2010	-	**-**	+25.0	+31.6
	2010-2011	-	**-**	+4.2	-2.9
Frequency to top in group	2008-09	4	**2/4**	0/4	0/4
	2009-10	5	**3/5**	0/5	1/4
	2010-11	8	**1/8**	0/8	1/8
	Total	17	**6/17**	0/17	2/17

2016).

Hundred percent recommended dose of fertilizer 40:30:20 NPK Kg/ha showed maximum yield, NMR and B:C ratio. Resistance to alternaria leaf spot, powdery mildew and tolerance to cercospora leaf spot was scored. In farmers field of Madhya Pradesh, it recorded 8.0-26.0 percent higher seed yield over local varieties (Anonymous, 2016a).

On the basis of good performance, it was released for cultivation in the state by Madhya Pradesh State Seed Sub-Committee an 27.4.2016.

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