



Two decades of Safflower in Madhya Pradesh from 1984-2004

M.K.Saxena¹, J.Singh², S.L.Deshpande³ and R.Choudhari⁴

JNKVV, College of Agriculture, Indore, 452001 Madhya Pradesh, INDIA.

umsax@rediffmail.com

Abstract

Madhya Pradesh region of India is a non-traditional region for safflower production, therefore it is significant that over two decades it has developed three types of safflower varieties. JSF-1 (Shweta) was the first Safflower variety released before inception of AICRP centre at Indore in 1984. AICRP development work on safflower started in 1986. It pushed the production area from small acreage to a splendid amount of 10,000 hectares (1988-89) in the Indore and Ujjain division. The JSI-7 high yielding spineless variety was released in 1990 for farmers. The JSI-73 (variety) released in 1997, then in 2004 came bold seeded spineless variety JSI-97. JSI-97 had 6 important traits hitherto unknown in earlier spineless safflower viz; high yield potential, short stature, bold seed earliness, high harvest index and low fodder potential. The semi spiny variety JSI-99 (2004) of extra early category with short stature and higher 100 seed weight and yielding about 1100 kg/ha under late planting condition in soybean-safflower sequence cropping.

Key words: Spiny – spineless - semispiny

The Madhya Pradesh a non-traditional region as regards safflower cultivation. In 1971 safflower work was initiated at Indore (M.P.). The research got momentum with the setting up of the IDRC (Canada) centre of Safflower in 1979. Improvement of spiny safflower started with drastic improvement in plant type. The earlier safflower varieties were tall, bushy, late maturing, lanky stature with terminal branching posing enormous handling problems in this nontraditional potential region. JSF-1 (Shweta), the first safflower variety was released in 1984 before the inception of AICRP centre at Indore. In 1986, AICRP on Safflower was started. Safflower area rose from negligible small acreage to 10,000 hectares in 1988-89 in Indore and Ujjain division (Sawant 1989). Spineless safflower is in great demand in the region, the high yielding spineless variety JSI-7 in 1990 was given to the farmers to serve as a catalyst for future spread of safflower area. With many improvements in spineless safflower, the variety JSI-73 in 1997 was released. The JSI-7 and JSI-73 were small seeded spineless varieties so in 2004 the bold seeded spineless variety JSI-97 was developed. The spineless variety JSI-97 had 6 important traits hitherto unknown in earlier spineless Safflower viz ; high yield potential, short stature, bold seed, earliness, high harvest index and low fodder potential (Sawant et al. 1997).

For the first time in 2004 after two decades, we had been successful in eliminating the sluggish rosette stage from the safflower by developing extra early safflower maturing in 100-110 days. This safflower will enable farmers to grow three crops (early legume-safflower-late wheat) in season. The semi spiny variety JSI-99 of extra early category with short stature and higher 100 seed weight yielded about 1100 kg/ha under late planting condition in soybean-safflower sequence cropping. The aphid and disease problem was also low in this variety. Because of the dwarf stature, harvesting and threshing is quite easy.



7th International Safflower Conference

WAGGA WAGGA AUSTRALIA

Table: 1 Released safflower varieties from Madhya Pradesh from 1984-2004

Details	JSF-1	JSI-7	JSI-73	JSI-97	JSI-99
Where developed	Safflower Research project, Indore	AICRP Safflower Research project Indore	AICRP, Safflower Research project, Indore	AICRP, Safflower Research project, Indore	AICRP, Safflower Research project, Indore
Pedigree	Selection from Open pollinated IC-11839	Selection from Open pollinated JSF-1909	Hybridization JSI-42 X JSI-7	Hybridization NS-133-I x JSI-62	Hybridization Mexican dwarf X BH-5
Breeding methods	Pedigree Method	Pedigree Method	Pedigree Method	Pedigree Method	Pedigree Method
Region for which recommended	Entire Madhya Pradesh	Entire Madhya Pradesh	Entire Madhya Pradesh	Entire Madhya Pradesh	Entire Madhya Pradesh
Year of release	1984	1990	1997	2004	2004

Table 2: Description of released safflower varieties from JNKVV Jabalpur, Madhya Pradesh

S.no	Character	JSF-1	JSI-7	JSI-73	JSI-97	JSI-99
1	Nature	Spiny	Spineless	Spineless	Spineless	Semi Spiny
2	Days to 50% flowering	95	97	98	92	78
3	Flower colour					
	a) at blooming	White	Yellow	Yellow	Yellow	Yellow
	b) at fading	Dull white	Orange Red	Orange Red	Orange Red	Orange Red
4	Size of Capitulum's	Medium	Small	Medium	Bold	Bold
5	Maturity (days)	145	145	147	132	120
6	Grain yield (kg/ha)	1500	1300	1350	1500	1100
7	Seed size	Bold	Small	Medium	Bold	Bold
8	Oil content %	30	32	31	30	29



Table 3: Morphological/Agronomical characters of released safflower varieties

S.no	Character	JSF-1	JSI-7	JSI-73	JSI-97	JSI-99
	a)Growth stage	Duration in days				
1	Rosette Stage	20-25	22-27	24-28	20-22	15-17
2	Elongation Stage	25-30	25-30	25-30	25-27	20-25
3	Bud stage	20-25	22-28	24-30	20-22	17-22
4	Flowering stage	20-25	25-28	25-28	18-22	15-20
	a) Blooming of flower	3-5	3-4	3-5	3-5	4-6
	b) Complete flowering of plant	20-22	22-25	22-25	15-18	7-10
5	Ripening of seed	40-45	40-45	40-45	35-40	30-35
	B)Seed Characteristics					
6	100 seed weight (g)	6.2	4.5	5.0	6.5	6.4
7	Hull content %	50.1	48.7	48.9	51.0	51.0
8	Kernel content %	49.9	51.3	51.1	49.0	49.0
9	Oil content %	30.	32.0	31.0	30.0	29.0
10	Harvest index %	28.0	24.4	25.4	28.0	29.0
11	Colour of grain	White	white	white	white	white

References

- Sawant, A.R. (1989) An extension approaches for popularization of Safflower as a new crop in the state of Madhya Pradesh. Oil crops News letters,4: 56-59
- Sawant, A.R. and Saxena,M.K.(1997) Potential of Spineless Safflower. Proc. International Safflower Conference 4th Bari (Italy): 243-247