PERFORMANCE OF SUNFLOWER HYBRIDS IN WEST BENGAL, INDIA

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Abstract

Thirteen sunflower varieties were tested at the University farm in West Bengal during winter season of 1983-84. The varieties differed significantly in growth, yield, yield attributes and duration. The seed yield, oil yield and oil content ranged from 1985 to 3027 kg/ha, 876 to 1324 kg/ha and 43·32 to 46·57 percent respectively. Plant height ranged from 96·3 cm to 159·0 cm and duration 103 - 130 days. Highest yield was observed in VSFH-1 followed by VSFH-10, VSFH-40, BSH-1 and VSFH-28.

Introduction

Sunflower was introduced in India to meet up the demand for vegetable oil. The Russian varieties were initially introduced and the varieties were tall, duration was also long and number of unfilled seeds were more. Later on, semi-dwarf varieties and some hybrids performed well as compared to tall varieties. The hybird varieties are capable of producing high yield and number of filled seeds is also high. In this present investigation some sunflower hybrids were tested along with two widely cultivated varieties.

Materials and Methods

A field experiment of different varieties of sunflower was conducted at the Bidhan Chandra Krishi Viswavidyalaya farm during winter season 1983-84 to evaluate the performance of different sunflower varieties. The varieties were sown on 23rd December, 1983 and were harvested as they mature (6th April, 84 - 2nd May, 84). There was uniform germination and gap filling was not necessary. The experiment was conducted in Randomized Block Design with 4 replications. The crop was sown at a distance of 60 cm between rows and 30 cm between plants. All varieties received 50 kg N, 60 kg P_2O_5 and 40 kg K_2O/ha. All P,K and half of N was applied at the time of sowing and rest half of nitrogen one month after sowing. The varieties used were Morden, BSH-1, VSFH-1, VSFH-3, VSFH-6, VSFH-10, VSFH-11, VSFH-28, VSFH-29, VSFH-37, VSFH-40, VSFH-42, VSFH-44 (VSFH = Vanaspati sunflower hybrid).

Results and Discussion

It is clear from Table 1 that the varieties differed significantly in plant height, number of filled seeds/head, number of unfilled seeds and 100 seed weight. Morden variety had significantly lower plant height of all the varieties tested and VSFH 1 was the tallest variety. BSH 1, VSFH 28, VSFH 44 were relatively taller, VSFH 11 and VSFH 37 was intermediate and rest of the varieties had lower plant height. Percentage filled seeds ranged from 62 to 89%. Percentage filled seeds were higher in VSFH 1, VSFH 6, VSFH 29, VSFH 3 and VSFH 28. Morden, BSH 1, VSFH 10, VSFH 40 and VSFH 37 had lower percentage of filled seeds. Number of filled seeds were relatively higher in VSFH 1, VSFH 3 and VSFH 28 followed by BSH 1, VSFH 42, VSFH 29 and VSFH 40 had lowest number of filled seeds. Number of unfilled seeds were higher in Morden, BSH 1, VSFH 10, VSFH 37 and VSFH 6 and VSFH 29 had lowest number of unfilled seeds. Hundred seed weight of seeds significantly varied among

Table 1. Effect of varieties on yield attributes of sunflower.

Varieties	Plant-height (cm)	Percentage filled seeds	Number of filled seeds/head	Number of unfilled seeds/head	Hundred seed weight (g)
Morden	96•3	64•6	661•5	362•8	5•82
BSH 1	157•8	65•3	739•1	391•8	5•16
VSFH 6	124•0	89•9	560•3	62•6	6•19
VSFH 10	121•7	62•8	602•0	357•2	8•09
VSFH 11	136•4	70•8	548•6	226•2	6•68
VSFH 28	152•1	82•7	1017•8	212•7	5•66
VSFH 29	122•5	88•3	697•2	92•4	5•76
VSFH 37	138•8	65•9	681•9	353•4	6•74
VSFH 40	127•6	62•4	482•8	290•5	6•88
VSFH 42	119•2	74•3	754•1	260•6	7•25
VSFH 44	155•1	69•0	577•2	259•3	7•57
VSFH 1	159•0	89•9	1179•5	192•1	5•21
VSFH 3	150•3	84•8	1007•1	179•9	4•35
S.Em ±	4•1	-	23•6	12•5	0•47
C.D. 5%	12•0	-	68•9	36•5	1•37

different varieties. VSFH 10, VSFH 42 and VSFH 44 had significantly higher 100 seed weight over other varieties.

Head diameter significantly varied among different varieties, VSFH 6 and VSFH 29 had significantly lower head diameter over other varieties. Large sized heads were found in VSFH 10 and VSFH 11. The varieties may be grouped into three classes according to maturity. VSFH 1 and VSFH 3 had long duration (130 days) followed by, VSFH 11, VSFH 28 and VSFH 44 which had medium duration (160 days) and rest of the varieties matured within 103 days. Seed yield varied significantly among different varieties. VSFH 1 gave significantly higher yield over all other varieties. VSFH 11 and VSFH 29 gave lower yield among the varieties. The yield of rest of the varieties ranged from 22-26 q/ha. VSFH 1 had significantly higher stalk yield over other varieties and VSFH 40 gave relatively lower yield. The oil content of the varieties ranged from 43 percent to 46 percent. Highest oil content was found in VSFH 3 and VSFH 40 had lower oil content. The oil yield also significantly varied among different varieties (Table 2). VSFH 1 gave significantly higher oil yield over others followed by BSH 1, VSFH 10, VSFH 28 and VSFH 6 and VSFH 11 had lower oil yield. VSFH 1 gave higher seed, stalk and oil yield among the different varieties tested.

Table 2. Effect of varieties on Head diameter and yield of sunflower.

Varieties	Head diameter (cm)	Duration (days)	Seed Yield (q/ha)	Stalk Yield (q/ha)	Oil content %	Oil yield (q/ha)
Mordan	14•6	103	20•4	37•3	44•9	9•2
BSH 1	14•7	103	25•5	34•9	46•3	11•7
VSFH 6	13•4	103	20•3	32•5	44•6	9•1
VSFH 10	17•5	103	26•3	35•3	44•9	11•7
VSFH 11	17•3	106	19•8	34•8	45•7	9•1
VSFH 28	16•3	106	24•7	35•8	45•8	11•3
VSFH 29	13•2	103	19•3	31•3	45•3	8•8
VSFH 37	15•0	103	21•6	31•6	43•7	9•4
VSFH 40	16•6	103	23•7	28•6	43•3	10•3
VSFH 42	15•9	103	22•6	35•9	44•4	10•0
VSFH 44	16•0	106	20•8	35•5	45•9	9•6
VSFH 1	16•0	130	30•2	45•0	43•7	13•3
VSFH 3	15•0	130	21•4	33•4	46•6	10•0
S.Em ±	0•37	-	0•89	1•18	-	0•52
C.D. 5%	1•08	-	2•60	3•44	-	1•52

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