



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(2): 1459-1461
Received: 14-01-2019
Accepted: 17-02-2019

Mithilesh Kumar Pandey
Department of Plant Pathology
Tilakdhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Ramesh Singh
Department of Plant Pathology
Tilakdhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Arvind Singh
Department of Plant Pathology
Tilakdhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Bishal Kumar Mishra
Department of Entomology,
SVPUA&T, Meerut,
Uttar Pradesh, India

Influence of dates of sowing, disease incidence and crop yield against *Alternaria* blight (*Alternaria lini*) of linseed

Mithilesh Kumar Pandey, Ramesh Singh, Arvind Singh and Bishal Kumar Mishra

Abstract

Linseed (*Linum usitatissimum* L.) is an important oil seed crop grown for dual purposes seed and fibre. To study the influence of dates of sowing and disease incidence and severity of *Alternaria* blight the year of 2015-16, 2016-17. The field trial was carried out using randomized block design with six treatments at different dates of sowing having three replication combinations at the interval of 10 days using variety EC-544. The observation was recorded the lowest disease incidence found 41.30 % in the treatment (T₆) with the maximum yield of 7.85 q/ha in 2015-16 and the maximum disease incidence in year 2015-16 was found in treatment (T₁) having 70.80% with the lowest yield of 1.65 q/h. In year 2016-17 with the same technical programme of 2015-16, the lowest disease incidence of 43.90% with the maximum yield of 7.35 q/h and the highest disease incidence 86.81 % found in the treatment (T₁) with the minimum yield of 1.35 q/ha.

Keywords: Linseed (*Linum usitatissimum* L.), dates of sowing, *Alternaria* blight (*Alternaria lini*)

Introduction

Linseed (*Linum usitatissimum* L.) is an important oil seed crop grown for dual purposes seed and fibre. It is a source of complete protein, high-order linolenic acid (an essential polyunsaturated omega-3 fatty acid), complex carbohydrates, vitamins and minerals. Flax seeds are used for industrial, food and feed purposes. Seeds are rich source of both non-edible and edible oil. In India, over 80% requirement of vegetable oil and fats are derived from seven edible annual oilseed crops viz., groundnut, rapeseed, mustard, soybean, sunflower, niger, sesame and safflower and two non-edible oilseeds viz., linseed and castor. Highest moisture depletion, consumptive use, moisture efficiency, total and effective rainfall use efficiency was recorded under the application of 80-60-60-40 kg NPKS ha⁻¹. Similarly, the maximum seed yield, economics, moisture use efficiency was also obtained with the plant density of 35 kg seed rate/ha (Kumar and Bidyut, 2016) [6]. Linseed plant is known to suffer from many diseases such as powdery mildew, rust, blight, canker, damping off, leaf spot, root rot, wilt and some non-parasitic diseases due to excess and deficiencies of trace elements (Kolte and Fitt, 1997). Amongst the diseases listed above, rust caused by *Melampsora lini*, leaf spot and black bud or blight caused by *Alternaria lini* and powdery mildew caused by *Oidium lini* are considered to be most important ones in India.

Materials and Methods

To study the influence of dates of sowing and disease incidence and severity of *Alternaria* blight the year of 2015-16, 2016-17. The field trial was carried out using randomized block design with six treatments at different dates of sowing having three replication combination at the interval of 10 days.

Scoring As On Leaves

For disease scoring on leaves 0-5 scale (Awasthi and kolte, 1994) was used where in

- 0 = no infection
- 1 = 1-10% leaf area infected
- 2 = 11-25% leaf area infected
- 3 = 26-50% leaf area infected
- 4 = 51-75% leaf area infected
- 5 = >75% leaf area infected

Correspondence

Mithilesh Kumar Pandey
Department of Plant Pathology
Tilakdhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

The disease incidence percentage was calculated by using the formula:

$$\text{Percent disease incidence} = \frac{\text{Number of infested plant parts}}{\text{Total number of plant parts observe}} \times 100$$

Result

This experiment was carried out at Student Research Farm Pilikothi of T.P.G. College Jaunpur (U.P) under the session of

2015-16 and 2016-17 with the variety EC-544. The observation in this trail was recorded twice in first session and same as in second session. The first and the second observation were taken 60-80 days after last date of sowing. There shows a gradual decrees and increase in the disease incidence the observation which are recorded in the field are describe as-, (Table 1).

Table 1: Influence of date of sowing, disease incidence and crop yield against *Alternaria* blight of linseed

S. No.	Treatment	Disease incidence %		Yield Q/ha	
		2015-16	2016-17	2015-16	2016-17
1	T1	70.80 (57.29)	86.81 (68.70)	1.65	1.35
2	T2	55.00 (47.87)	64.00 (53.13)	3.45	2.55
3	T3	62.10 (51.35)	74.70 (59.80)	2.28	1.55
4	T4	48.60 (44.20)	54.53 (47.58)	5.71	3.20
5	T5	55.60 (48.22)	62.81 (52.42)	3.20	2.20
6	T6	41.30 (39.93)	43.90 (41.50)	7.85	7.35
CD at 5%		(1.519)	(0.999)	(1.153)	(0.728)

The data presented in Table.1 and its corresponding histogram (fig.1) showed that the treatment T₁ was done on 28 Oct. 2015 and other treatment were followed by 10 day interval and in year 2016-17 the date of sowing was followed same as 2015-16. The different date of sowing gives the ununiformity in the disease incidence in year 2015-16 The maximum disease incidence 70.80 in the treatment T₁ and

lowest disease incidence were found 41.30 in the treatment T₆ the yield of both the treatment were found respectively 1.65 and 7.85 Q/ha. In the 2016-17 the disease incidence was found maximum 86.31 in treatment T₁ and minimum 43.90 in the treatment T₆ the yield was recorded maximum in treatment T₆ 7.35 Q/ha and minimum in the yield of T₁ 1.35 Q/ha.

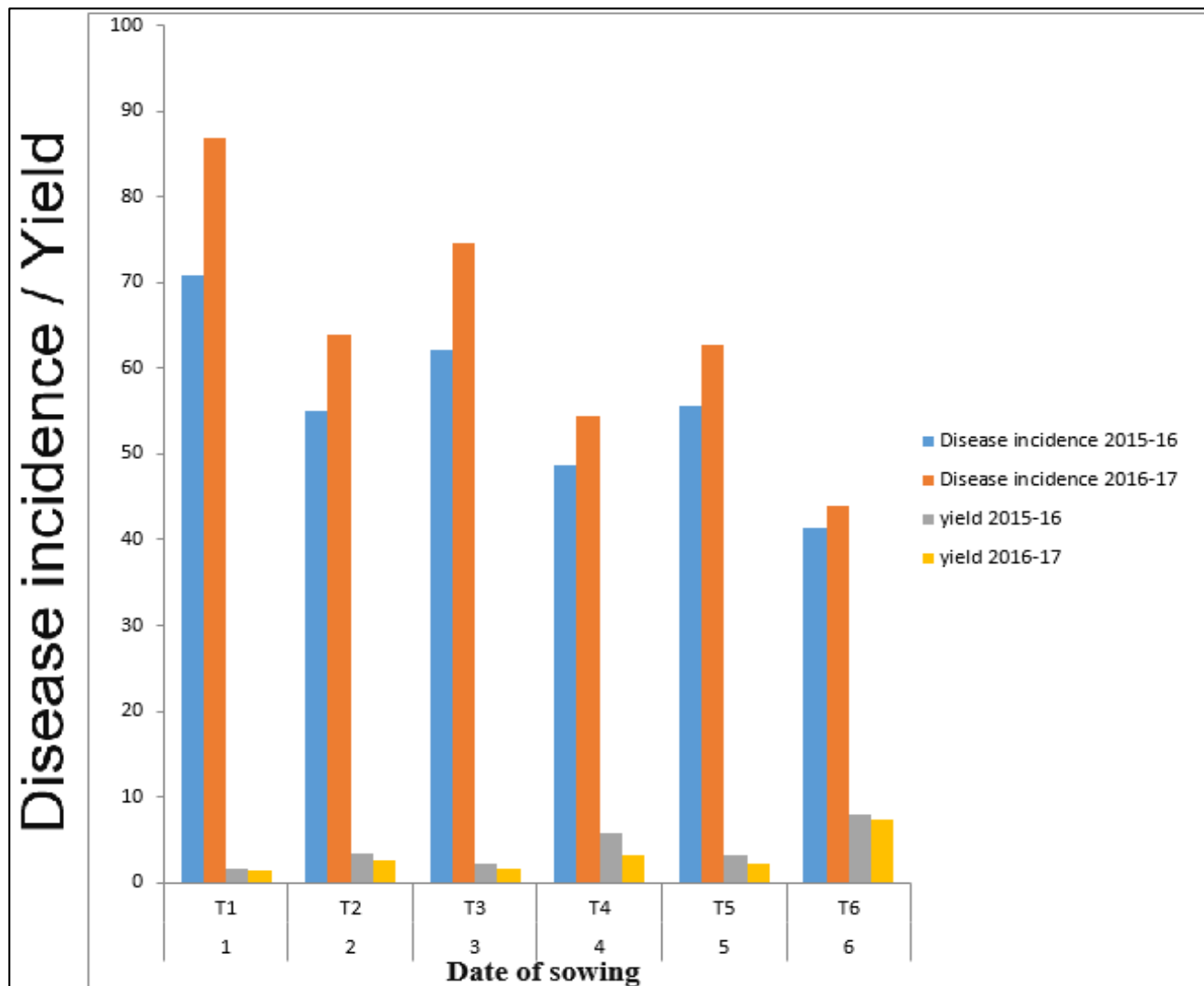


Fig 1: Influence of date of sowing, disease incidence and crop yield against *Alternaria* blight of linseed

Discussion

The experiment which was done on the Student Research Farm of the college under the given session of 2015-16 & 2016-17 with the variety EC-544. The observation which or recorded the lowest disease incidence where found 41.30 in the treatment (T₆) with the maximum yield of 7.85 q/ha in 2015-16 the maximum disease incidence in year 2015-16 was found in treatment (T₁) with 70.80% with the lowest yield of 1.65 q/h. In year 2016-17 with the same technical program of 2015-16 the lowest disease incidence of 43.90% with the maximum yield of 7.35 q/h and the maximum disease incidence 86.81 % found in the treatment (T₁) with the minimum yield of 1.35 q/ha. Our finding consider with the finding of Singh (2008) ^[1] on linseed crop. The date of sowing disease incidence of *Alternaria blight* of linseed recorded highest disease intensity, when crop was shown on 10th Oct. and it gradually decline on later dates sown crop. Highest seed yield with less disease intensity was obtained when crop was sown on 30th Oct. followed by 20th Oct. Baswana *et al.* (1991) ^[3] also reported the high incidence and severity of *Alternaria blight* of cumin in early sown crop than the crop which was sown later. However, when yield of linseed was considered it was observed that highest yield was recorded in early sowing and as sowing was delayed the yield showed a down ward trend and it was drastically reduced in the last date of sowing.

Summary and conclusion

In the experiment on date of sowing the observation which or recorded the lowest disease incidence were found 41.30 in the treatment (T₆) with the maximum yield of 7.85 q/ha in 2015-16. The maximum disease incidence in year 2015-16 was found in treatment (T₁) with 70.80% with the lowest yield of 1.65 q/h. In year 2016-17 with the same technical program of 2015-16 the lowest disease incidence of 43.90% with the maximum yield of 7.35 q/h and the maximum disease incidence 86.81% found in the treatment (T₁) with the minimum yield of 1.35 q/ha.

References

1. Anonymous. www.wikipedia.org/linseed, 2007, 2008
2. Arya HC, Prasad R. *Alternaria blight* of linseed Indian Phytopathology. 1952; 5:33-39.
3. Baswana KS, Jalali I, Maia LC. Effect of sowing dates and fungicides on seed quality, yield and disease incidence of cumin. Indian Cocoa, Arecanut and spices Journal. 1991; 14(4):155-157.
4. Chahal AS, Rang MS. Influence of the meteorological factors on the development of *Alternaria blight* of rape and mustard in the Punjab. Indian Phytopathol. 1979; 32:171(Abstr.).
5. Humpherson-Jones PM, Phelps K. Climatic factors influencing spore production in *Alternaria brassicae* and *Alternaria brassicicola*. Ann. Appl. Biol. 1989; 112(3):70-80.
6. Kumar Rakesh, Bidyut CD. Response of fertility levels and seeding rates on production potential and Moisture use efficiency of linseed under foot hill condition of Nagaland <http://epubs.icar.org.i> www.kiran.nic.in; ISSN. 2016, 0970-6429.
7. Singh Narendra, Effect of date of sowing on yield and disease intensity of *Alternaria blight* in linseed. International Journal of Plant Protection. 2008; 1(2):38-39.

8. Singh RB, Singh RN. Date of sowing and varieties for the management of root-rot wilt complex of linseed (*Linum usitatissimum* L.). Indian Journal of Agricultural Sciences. 2011; 81(3):287-289.