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Occurance of common scab disease of potato in western Uttar Pradesh

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Abstract
The surveys were conducted during the year 2019 - 2020 in five districts - Meerut, Muzaffarnagar, Bulandshahr, Shamli and Ghaziabad of western Uttar Pradesh to record the percent incidence and intensity *of* russet scab, typical common scab and pseudo russetting scab in potato produce. The russet scab was found in all the potato varieties grown under potato development program in different districts of western Uttar Pradesh. The incidence was observed from 1.2 - 6.36% (D.I 0.01 - 2.25). The potato producing area was found more susceptible by carrying the russet scab symptom from 2.67 - 6.36% (D.I 1.39 - 2.25). Pseudo russetting scab incidence in potato produce was found more 1.89 - 5.31% (D.I 0.31 - 1.8) in comparison to russet scab. The russetting scab was due to the application of high doses of phosphorus and potash fertilizers and also soil alkalinity.

Keywords: Occurance, common, potato, western

Introduction
Common scab is a tuber borne disease of potato caused by *Streptomyces Scabies* and might pose the potential threat to the potato production programs in the plains of western Uttar Pradesh. All the commercial verities were found susceptible to russet scab and typical scab of potato infection. Based on the observations different types of symptoms have been recorded under different weather conditions, soil types and moisture level and micro nutrient application but more than 50% tubers carrying a russetting did not yield scab infection. Therefore, present study was undertaken to assess the scab infection - Russett scab and typical scab symptoms in seed stock/ware potato in Meerut region of Uttar Pradesh.

Fig 1: Russet scab symptoms on potato tuber

Fig 2: Typical common scab symptom on potato tuber

Fig 3: Pseudo russetting on potato tuber

Materials and Methods

Surveys were conducted during two years (2019-2020) to determine the status of russet scab and typical common scab symptoms in different varieties grown in 6 distrcits - Meerut, Muzaffarnagar, Bulandshahr, Shamli and Ghaziabad of western Uttar Pradesh. Total of 60 fields (Ten from each district places) were selected randomly to conduct the survey. The produce of five varieties - Kufri Bahar, Kufri Anand, Kufri Khiyati, Kufri Pukhraj, Kufri Mohan were examined to record the observations on the incidence and intensity of the disease. The assessment key grade and formula were used as reported by Rajpal and Sekhawat 1994 [1].

Results and Discussion

The collected information on the prevalence status of different common scab of potato - Russet scab, common scab and russetting scab (pseudo scab) have been compiled and presented in table. The different type of symptoms of scab were found to be prevalent in all the districts of western Uttar Pradesh under survey. The survey data showed that russet scab is the most important tuber borne disease in the area surveyed. The maximum incidence varried from 1.96% (D.I 1.21) to 6.36% (D.I 2.25) was found in all the varieties - Kufri Bahar, Kufri Anand, Kufri Khiyati, Kufri Pukhraj, Kufri Mohan in Shamli area followed by Ghaziabad 3.67 - 5.50% (D.I 1.22 - 2.1) Muzaffarnagar 1.89 - 3.56% (D.I 0.02 - 0.36) and Meerut 1.2 - 3.2% (D.I 0.01 - 1.21). However kufri, khiyati variety was found more susceptible by carrying the russet scab symptoms from 3.2 - 4.31% (D.I 1.21 - 1.82). It may be because of thin skin variety.

Most of the western Uttar Pradesh area was found free from the typical common scab disease of potato. However the typical common scab symptoms (Star shape, deep scab) was found in two varieties tubers - Kufri Bahar and Kufri Anand in Bhainswal village of Shamli district. The incidence was observed from 8.67 - 2.36% (D.I 2.67 - 0.39) it was may be due to the showing of infected seed potato transported from Punjab (Jalandar market). In shamli area, potato crop grown under sprinkler irrigation was found to have more russet scab symptoms. Such type of symptoms has already been reported by Khanna *et al*. 1999.

The pseudo russetting scab in these days is a problem in potato seed production program in western Uttar Pradesh area. The russetting scab is a pseudo scab and such type of infected tubers didn't yield the scab pathogen. It is generally appear due to the application of high doses of phosphorus and potash fertilizers. Alkalinity in the soil is the main factor of russetting scab. The incidence of russetting scab was recorded 2.67 to 5.61% (D.I 1.2 - 5.16) in all the places and in all the varieties in western Uttar Pradesh.

Percent incidence and intensity of Russet scab, common scab and *Russetting scabe* of potato in Meerut region.

Table 1: Meerut

	Russet Scab		Common Scab		Russetting Scab	
Varieties	% Incidence	Intensity	% Incidence	Intensity	% Incidence	Intensity
K Bahar	1.2	0.01	0.00	0.00	3.6	1.2
K Anand	1.8	0.2	0.00	0.00	4.46	2.3
K Khiyati	3.2	1.21	0.00	0.00	5.31	1.8
K Pukhraj	1.87	0.36	0.00	0.00	3.52	0.9
K Mohan	1.67	0.26	0.00	0.00	2.67	0.8

Table 2: Muzaffarnagar

	Russet Scab		Common Scab		Russetting Scab	
Varieties	% Incidence	Intensity	% Incidence	Intensity	% Incidence	Intensity
K Bahar	2.67	0.02	0.00	0.00	4.36	1.67
K Anand	1.89	0.01	0.00	0.00	3.92	1.56
K Khiyati	2.56	0.80	0.00	0.00	3.97	1.36
K Pukhraj	3.56	0.36	0.00	0.00	4.31	1.26
K Mohan	2.52	0.56	1.31	0.76	5.61	1.16

Table 3: Bulandshahr

	Russet Scab		Common Scab		Russetting Scab	
Varieties	% Incidence	Intensity	% Incidence	Intensity	% Incidence	Intensity
K Bahar	1.67	0.03	1.67	0.21	3.12	1.10
K Anand	2.76	0.21	0.00	0.00	3.89	1.76
K Pukhraj	1.82	0.31	0.00	0.00	2.67	0.86
K Khiyati	2.37	0.26	0.00	0.00	1.89	0.31
K Mohan	1.89	0.36	0.00	0.00	1.36	0.21

Table 4: Shamli

	Russet Scab		Common Scab		Russetting Scab	
Varieties	% Incidence	Intensity	% Incidence	Intensity	% Incidence	Intensity
K Bahar	2.67	1.39	8.67	2.67	3.86	1.67
K Anand	1.96	1.21	2.36	0.39	2.89	1.01
K Khiyati	3.89	1.67	0.00	0.00	4.67	1.89
K Pukhraj	5.67	2.10	0.00	0.00	3.96	1.31
K Mohan	6.36	2.25	0.00	0.00	2.95	0.86

Table 5: Ghaziabad

	Russet Scab		Common Scab		Russetting Scab	
Varieties	% Incidence	Intensity	% Incidence	Intensity	% Incidence	Intensity
K Bahar	3.67	1.22	0.00	0.00	3.22	1.22
K Anand	5.50	2.31	0.00	0.00	1.88	1.37
K Khiyati	4.31	1.82	0.00	0.00	1.76	1.32
K Pukhraj	3.96	1.21	0.00	0.00	2.56	1.16
K Mohan	2.86	0.82	0.00	0.00	3.59	1.76

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