

AD 674924

TRANSLATION NO. 2169

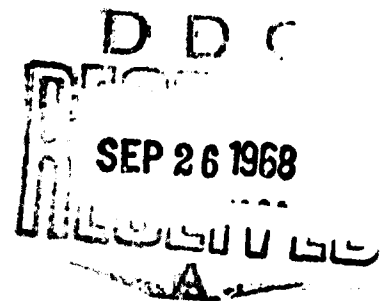
DATE: 24 March 1968

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## APPLE SCAB

Pages 216-219, V.25, 1964  
Trans. All-Union Inst. of Plant  
Protection

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In 1964, apple scab (*Venturia inaequalis* Wint.) was recorded in all areas. However in view of the broad spectrum the conditions for development of the disease did not form identically.

In the orchards of European USSR, the zone where there is constant development of scab, its manifestation on the apple and pear tree was not epiphytotic in nature. This was related first of all with the small amount of precipitation during the spring-summer period over a large part of the territory. Only in a few rayons where there was a normal level of rainfall was there stronger development of scab.

In the Nonchernozem zone development of scab was mild and moderate (Table 1). In view of the dry and hot weather there was minimal development in Estonian SSR, Lithuanian SSR, Latvian SSR and Belorussian SSR, as well as in Kalningradskaya, Vitebskaya, Pskovskaya, Novgorodskaya, Leningradskaya, Yaroslavskaya and Ivanovskaya oblasts. In these regions leaf and fruit invasion did not exceed 50-65%. Only in some farms it attained 90% on very susceptible varieties, but in a mild form.

In those areas where the precipitation was within normal range there was stronger manifestation of scab. This applies to the North-Eastern regions of Latvian SSR as well as oblasts in the South-Eastern part of the North-Western zone. In these areas at times leaf and fruit involvement in susceptible varieties attained 100%. The intensity of development of the disease was also highest in these areas. The following varieties were the most involved: Aport, Bellefleur-kitayka, Grushovka Moskovskaya, Belyy naliy and Melba.

The dry hot weather in Western and some parts of the Northern rayons of the forest-steppe zone restrained development of the disease during the season. As a result scab did not inflict serious harm. Mild involvement of apple trees was observed in Zakarpatskaya, Sumskaya (northern

part) and other oblasts as well as in Nardovskaya ASSR (Table 2). While in some orchards there was a high percentage of invasion, the degree of development of the disease was mild.

Table 1  
Scab invasion of apple trees in the Nonchernozem zone in 1964

Республика, область	Время появления болезни	Процент поражения		Интенсивность развития болезни
		Лист	Плоды	
Эстонская ССР	—	—	1—10	Слабая От слабой до средней
Латвийская ССР	—	13—86	5—92	
Литовская ССР	4/VI	2—89	1,5—18	Средняя
Калининградская обл.	Середина июня	20—43	3—65	
Ленинградская обл.	6/VI	7—25	2—50	Слабая
Новгородская обл.	—	40	15	
Ярославская обл.	—	—	16	Средняя
Ивановская обл.	Середина июня	—	17—61	
Владимирская обл.	—	2—32	1—98	Средняя
Московская обл.	—	11—16	78—91	
Рязанская обл.	—	100	11—80	Средняя
Калужская обл.	Конец мая	53	5—99	
Смоленская обл.	—	40—55	10—100	Средняя
Брянская обл.	—	48—79	71—78	
Могилевская обл.	11/VI	—	—	Слабая
Витебская обл.	5/VI	23	Ед.	
Гомельская обл.	12/VI	8—12	3—14	Слабая
Минская обл.	28/V	31	—	
	8/VI	—	—	

Legend:

- |                                  |                           |
|----------------------------------|---------------------------|
| a) republic, oblast              | p) Vladimirskaya Obl      |
| b) time of appearance of disease | q) Moskovskaya Obl        |
| c) percentage invaded            | r) Kyazanskaya Obl        |
| d) leaves                        | s) Kaluzhskaya Obl        |
| e) fruit                         | t) Smolenskaya Obl        |
| f) intensity of disease          | u) Brestskaya Obl         |
| g) Estonian SSR                  | v) Mogilevskaya Obl       |
| h) Latvian SSR                   | w) Vitebskaya Obl         |
| i) Lithuanian SSR                | x) Gomel'skaya Obl        |
| j) Kaliningradskaya Obl [oblast] | y) Minskaya Obl           |
| k) Leningradskaya Obl            | z) mid-June               |
| l) Pskovskaya Obl                | aa) end of May            |
| m) Novgorodskaya Obl             | bb) mild                  |
| n) Yaroslavl'skaya Obl           | cc) from mild to moderate |
| o) Ivanovskaya Obl               | dd) moderate              |

Table 2  
Scab invasion of apple trees in the Forest-steppe zone in 1964

Область	Дата появления болезни	Интенсивность развития болезни		Интенсивность развития болезни
		до 8	9-17	
Львовская обл.	—	8-29	8-29	Слабая
Волынская обл.	1-VI	5-10	27-30	
Ровенская обл.	Конец мая	до 8	—	Средняя
Тернопольская обл.	13-15 V	23-30	37	
Черновицкая обл.	12-VI	30-71	9-17	Средняя
Винницкая обл.	23 V	77	73	
Хмельницкая обл.	5-VI	51-100	37-65	Средняя
Житомирская обл.	Конец мая	11-100	3-51	
Київская обл.	20-VI	—	37-100	Средняя
Кировоградская обл.	5 V	37-93	53-100	
Днепропетровская обл.	23 V	7-95	61-80	Средняя
Полтавская обл.	12 V	21-100	6-97	
Харьковская обл.	27 V	25-91	10-31	Средняя
Сумская обл.	21 V	5-71	7-67	
Орловская обл.	Конец мая	до 53,00	5-87	Средняя
Курская обл.	То же	до 100	до 70	
Липецкая обл.	—	—	9-100	Средняя
Тамбовская обл.	Начало июня	5-100	15-50	
Пензенская обл.	1-12/VI	15-25	2-95	Средняя
Ивано-Франковская обл.	Конец мая	2-74	до 100	
Мордовская АССР	23 V	16-29	56	Средняя
	Середина июня	60	30-17	

Legend:

- |                                  |                            |
|----------------------------------|----------------------------|
| a) republic, oblast              | s) Chernigovskaya Obl      |
| b) time of appearance of disease | t) Poltavskaya Obl         |
| c) percentage invaded            | u) Khar'kovskaya Obl       |
| d) leaves                        | v) Sumskaya Obl            |
| e) fruit                         | w) Orlovskaya Obl          |
| f) intensity of scab development | x) Kurskaya Obl            |
| g) Zakarpatskaya Obl             | y) Lipetskaya Obl          |
| h) L'vovskaya Obl                | z) Tambovskaya Obl         |
| i) Volynskaya Obl                | aa) Penzenskaya Obl        |
| j) Rovenskaya Obl                | bb) Ivano-Frankovskaya Obl |
| k) Ternopol'skaya Obl            | cc) Mordovskaya ASSR       |
| l) Chernovitskaya Obl            | dd) end of May             |
| m) Cherkasskaya Obl              | ee) early June             |
| n) Vinnitskaya Obl               | ff) mid June               |
| o) Khmel'nitskaya Obl            | gg) up to ...              |
| p) Zhitomirskaya Obl             | hh) mild                   |
| q) Kiyevskaya Obl                | ii) moderate               |
| r) Kirovogradskaya Obl           |                            |

In the Eastern rayons of the Forest-steppe zone the conditions were found to be more favorable for development of the disease. The spring was warm with a sufficient amount of precipitation. The temperature and humidity during the summer were also close to normal. As a result scab developed more markedly on the apple trees than in the Western rayons of the zone. These rayons include: Cherkasskaya, Khmel'nitskaya, Zhitomirskaya, Poltavskaya, Kirovogradskaya, Orlovskaya, Tambovskaya, Khar'kovskaya oblasts and some rayons of Penzenskaya and Vinnitskaya oblasts. Marked invasion was observed on the following varieties: Papinka litovskaya, Boyken, Rainette kurskiy, Grushovka moskovskaya, Rainette bergamotnaya, Papirova, Shtreyfling, Anis, Borovinka.

In the Steppe zone (Table 3) foci of strongest development of scab were recorded in Krasnodarskiy, Stavropol'skiy kray and Kabardino-Balkarskaya ASSR. The cool humid spring as well as the relatively cool summer with high level of precipitation resulted in massive development of the fungus. Moderate development of the disease was noted in Dnepropetrovskaya, Zaporozhskaya, Luganskaya, Donetskaya, Volgogradskaya oblasts as well as Kalmyk ASSR, Dagestan ASSR, Checheno-Ingushskaya ASSR and North-Osetin ASSR. There was mild development of scab in the Southern parts of the Ukraine and Moldavia.

There was moderate development of the disease in the Transcaucasian republics. Thus, in Georgian SSR apple leaf invasion ranged from 7 to 38%, fruit invasion -- from 2 to 31% with relatively mild degree of involvement. In Azerbaydzhan SSR fruit invasion was more visible (24-38%).

Moderate and mild development of scab was recorded in the zone of Northern Povolzh'ye. In Kirovskaya, Gor'kovskaya and Ul'yanovskaya oblasts as well as in Mariyskaya ASSR, Chuvashskaya ASSR and some rayons of Kuybyshevskaya Oblast and Tatar ASSR the conditions were not favorable for development of the disease. In these areas leaf invasion ranged from 4 to 50%, fruit invasion -- from 1 to 50%, but it was mild. In Udmurtskaya ASSR as well as in some rayons of Tatar ASSR and Kuybyshevskaya Oblast where there was sufficient rainfall during the spring and summer period scab is somewhat more intensively manifested. Kitayka zolotaya rannyaya and Kitayka Saninawo struck the hardest (70 to 100%).

Foci of marked development of scab were recorded in Bashkir ASSR, Chelyabinskaya, Kurganskaya, Tyumenskaya, Omskaya, Kemerovskaya and Severo-Kazakhstanskaya Oblasts. Leaf and fruit invasion reached 80-100%. Profuse rainfall was the cause. Such varieties as Rayka krasnaya, Khoroshavka, Okryabr'skoye, Anisik omskiy, Kitayka zolotaya rannyaya, Belyy naliv and Anis polosatyy were markedly invaded. Fading [yellowing] and premature shedding of the leaves of these varieties were observed. In Kokchetavskaya and Kragandinskaya oblasts as well as Altayskiy Kray the disease was more moderate. Fruit invasion constituted up to 50%.

Table 3  
Scab invasion of apple trees in the Steppe zone in 1964

Республика, край, область	Время появления	Интенсивность		Интенсивность развития болезни
		листья	плоды	
Молдавская ССР	6.V	7-20	5-70	Слабая (d)
Астраханская обл.	10.VI	10-75	11-78	
Николаевская обл.	10.VI	15-12	15-12	Средняя (cc)
Днепропетровская обл.	10.VI	60-100	2-62	
Новосибирская обл.	17.VI	17-20	2-21	Слабая
Саратовская обл.	17.VI	11-17	10-17	
Самарская обл.	17.VI	8-10	12-100	Средняя
Крымская обл.	17.VI	7-100	7-100	
Донецкая обл.	20.VI	20-70	31-50	Средняя
Саратовская обл.	30.VI	-	65	
Ивановская обл.	Начало июня	30-50	10-80	Средняя
Астраханская обл.	-	50-70	-	
Калининская АССР	-	30-78	-	Сильная
Калмыцкая АССР	-	-	85	
Краснодарский край	-	80-100	70-76	Сильная (ff)
Северо-Осетинская АССР	29.V	20-85	75	
Чечено-Ингушская АССР	9.V	-	1-65	Средняя
Дагестанская АССР	-	9-77	6-92	
Кабардино-Балкарская АССР	13.V	91	98	Сильная

Legend:

- |                                     |                               |
|-------------------------------------|-------------------------------|
| a) republic, kray, oblast           | q) Volgogradskaya 'Obl        |
| b) time of appearance of scab       | r) Astrakhanskaya Obl         |
| c) percentage invaded               | s) Kalmyk ASSR                |
| d) leaves                           | t) Krasnodarskiy Krai         |
| e) fruit                            | u) Stavropol'skiy Krai        |
| f) Intensity of disease development | v) North-Osetin ASSR          |
| g) Moldavian SSR                    | w) Checheno-Ingushskaya ASSR  |
| h) Odesskaya Obl                    | x) Dagestan ASSR              |
| i) Nikolayevskaya Obl               | y) Kabardino-Balkarskaya ASSR |
| j) Dnepropetrovskaya Obl            | z) early May                  |
| k) Khersonskaya Obl                 | aa) end of May                |
| l) Krymskaya Obl                    | bb) mid May                   |
| m) Zaporozhskaya Obl                | cc) early June                |
| n) Donetskaya Obl                   | dd) mild                      |
| o) Luganskaya Obl                   | ee) moderate                  |
| p) Saratovskaya Obl                 | ff) severe                    |

In the Central Asian Zone there was marked development of scab in Alma-Atinskaya Oblast. The disease showed mass scale development both in wild stands and in orchards. There was strong invasion of the following varieties: Pepin litovskiy, Anis polosatyy, Mal't bagayevskiy and

Rayka (up to 70-100%). As a result their leaves dropped prematurely in mid summer. In Kirgiz SSR scab was recorded primarily in the orchards of Chuskaya and Talasskaya plains (up to 50% of the fruit was involved).

The conditions were also favorable for scab in Amurskaya Oblast, Khabarovskiy and Primorskiy Krays. Leaf and fruit invasion attained 100% in some areas.

As indicated by the records, there was unsatisfactory control of apple scab. In most instances treatment was not instituted at the proper time and it was not in accordance with the complete program as stipulated in zonal systems of measures. In some areas no chemical treatment was given at all. As a result there was a large store of infection. ( ) For this reason there is every reason to expect a severe outburst of scab in 1965.