

TABLE OF CONTENTS:

RULES on protective measures for preventing the spread and for suppression of the hop wilt, caused by fungi *Verticillium alboatrum* Reinke at Berthold and *Verticillium dahliae* Klebahn 2

I. GENERAL PROVISIONS 2

 Article 1 (purpose) 2

 Article 2 (subject of control) 2

 Article 3 (definitions) 2

 Article 4 (regulated area) 3

 Article 5 (endangered area) 3

 Article 6 (infected area) 4

 Article 7 (systematic control) 4

II. DETERMINATION OF HEALTH CONDITION 4

 Article 8 (examinations) 4

 Article 9 (symptoms of infection) 5

 Article 10 (examinations and laboratory testing) 5

 Article 11 (general measures) 6

 Article 12 (responsibilities of owners at an endangered area) 6

III. MEASURES TO BE TAKEN IN AN INFECTED HOPFIELD 6

 Article 13 (infected hopfield) 6

 Article 14 (destruction of individual infected plants) 7

 Article 15 (destruction of infested hopfield) 7

 Article 16 (quarantine crop rotation) 7

 Article 17 (obligations of owners in the infected area) 8

 Article 18 (harvesting hops from infected hopfields) 9

 Article 19 (thermal decomposition of spent hops from an infected hopfield) 9

 Article 20 (parent hopfield) 9

IV. RECORDS, ANNUAL PROGRAMME AND COMPENSATION 10

 Article 21 (records and annual programme) 10

 Article 22 (compensation) 10

 Article 23 (exceptions) 10

V. TRANSITIONAL AND FINAL PROVISIONS 10

 Article 24 (competent body) 10

 Article 25 (validity) 11

Annex 1: List of administrative units of areas endangered by hop wilt 11

ADMINISTRATIVE UNITS OF SAVINJSKO AREA: 11

ADMINISTRATIVE UNITS OF KOROŠKO AREA: 11

ADMINISTRATIVE UNITS OF OTHER AREAS: 11

Annex 2: Infected areas within the territory of the Republic of Slovenia where the presence of hop wilt has been confirmed, by cadastral communities. 12

On the basis of Articles 10 and 12 and the third and fourth indent of Article 73 in relation to the fourth paragraph of article 60 of the Plant health act (Official Gazette of the Republic of Slovenia, No 45/01) the Minister of agriculture, forestry and food hereby issues these

RULES

On protective measures for preventing the spread and for suppression of the hop wilt, caused by fungi *Verticillium albo-atrum* Reinke at Berthold and *Verticillium dahliae* Klebahn

I. GENERAL PROVISIONS

Article 1 (purpose)

In order to determine the presence, prevent the entry and spread, determine the location and extent of occurrence, and to suppress with the aim to control hop wilt, caused by the fungi *Verticillium albo-atrum* Reinke at Berthold and *Verticillium dahliae* Klebahn (furtheron as: hop wilt), a survey of the health condition of hops and phytosanitary measures provided for in these Rules shall be carried out.

Article 2 (subject of control)

(1) The presence of hop wilt shall be determined for cultivated hops however all host plants within the endangered area shall be subject to the prescribed measures.

(2) Host plants for hop wilt shall be the following:

- hops *Humulus lupulus* L.;
- cultivated broad-leaved plants, in particular: potatoes (*Solanum tuberosum* L.), tomatoes (*Lycopersicon esculentum* (L.) Karsten ex Farw.), cucumbers (*Cucumis sativus* L.), lucerne (*Medicago sativa* L.), fodder beet, salad beetroot and sugar beet (*Beta vulgaris* L. ssp. *vulgaris*), lettuce (*Lactuca sativa* L.), kidney beans (*Phaseolus vulgaris* L.) and cabbage (*Brassica oleracea*) L.;
- broad-leaved weeds, in particular: corn chamomile (*Anthemis arvensis* L.), Shepherd's purse (*Capsela bursa-pastoris* L.), white goosefoot (*Chenopodium album* L.), German chamomile (*Matricaria chamomilla* L. p. p. *Matricaria recutita* L.), narrowleaf plantain (*Plantago lanceolata* L.), Lady's-Thumb (*Polygonum persicaria* L.), Common groundsel (*Senecio vulgaris* L.), Black nightshade (*Solanum nigrum* L.), common dandelion (*Taraxacum officinale* Weber) and dwarf nettle (*Urtica urens* L.).

Article 3 (definitions)

The terms used in these Rules shall have the following meaning:

1. Virus-free plants shall be the planting material of hops with a certificate A, originating from virus-free parent hop plants produced under protected conditions.
2. Spent hops shall be the green mass of hops left after picking.
3. Hopfield shall be a plantation of hop plants cultivated by one owner, registered with the hops commission, in accordance with the regulations governing the hop market; it includes the area with a cable railway and turning places and paths necessary for cultivation of the hopfield.

4. Quarantine crop rotation shall be the period of cultivating plants which are not host plants, after destruction of the infected hopfield and until the new hopfield is planted.
5. Parent hopfield shall be the place of production of hop planting material, where the plants with a certificate B are produced, and which have been authorised by an authorised expert body.
6. Regulated area shall be the area, where host plants and other regulated articles are subject to phytosanitary measures in order to prevent the introduction or spread of hop wilt.
7. Pest-free production site shall be the production site of the planting material of hops or the parent plantation holding the status of a pest-free place of production and representing a continuous area planted with hops originating from the same year, being of the same variety and species of the planting material, with equal planting spaces and under the same system of installation of guide-ropes.
8. Pest-free place of production shall be the place of production within the endangered area where the absence of hop wilt has been proved by the means of systematic control and such condition is being maintained.
9. Endangered area shall be a part of the regulated area where not considering the phytosanitary measures would result in spread of hop wilt and consequently in economically important loss.
10. Infected area shall be a part of the endangered area where hop wilt is present in at a least one hopfield and is under official control in compliance with these Rules.
11. Authorised professional body shall be the body confirming the parent hopfield on the basis of the record of examination for varietal purity and health condition, issued by the performer of public service.
12. Consignments of plants shall be consignments of planting material and other parts of hop plants, except for cones.
13. Growing season shall be the period of active growth of hops and other host plants within the area.
14. Buffer zone shall be an area which encloses a pest-free production site of hop planting material, in which phytosanitary measures are taken to prevent spread of hop wilt.

Article 4
(regulated area)

The territory of the Republic of Slovenia shall be the regulated area for hop wilt, where pest-free places of production or pest-free production sites of hop planting material are maintained.

Article 5
(endangered area)

On the account of hop wilt, the following areas shall be declared as endangered areas:

- hopfields, and
- fields directly adjacent to hopfields, within the areas in Annex 1, which is a constitutional part of these Rules, and
- fields cultivated by the owner of hopfields.

Article 6
(infected area)

Parts of endangered areas where the presence of hop wilt has been confirmed shall be considered infected areas. Infected areas shall be indicated in Annex 2, which is a constitutional part of these Rules.

Article 7
(systematic control)

(1) Systematic control of hop wilt shall be carried out in the endangered areas referred to in the first and second indent of Article 5 of these Rules, in compliance with the annual programme referred to in Article 21 of these Rules.

(2) Systematic control shall include determination of health condition of hops and, in case of confirmed infection, ordering measures laid down in Article 13 of these Rules.

(3) Determination of health condition of hops shall include visual inspections, sampling and laboratory tests.

(4) Measures may also refer to endangered areas referred to in the third indent of Article 5 of these Rules.

II. DETERMINATION OF HEALTH CONDITION

Article 8
(examinations)

(1) Visual examinations shall be carried out by an authorised provider of public plant health service at the Institute for hop-growing and brewing, Žalec (furtheron: provider of public service) at least once a year during the growing season and at least once in 30 days before harvesting hops, in all:

- infected areas,
- parent hopfields with appurtenant buffer zones,
- pest-free places or pest-free sites of production, declared for planting a parent hopfield in compliance with the third paragraph of Article 20 of these Rules, and
- pest-free places of production of virus-free plants.

(2) If a suspicion exists of infection with the hop wilt, at least one sample of hop-vine should be taken from the hopfield to be analysed in the laboratory. The sample shall be considered official if it has been taken by a performer of public service or the phytosanitary inspector and a record has been taken thereof.

(3) The examination referred to in the second and forth indent of the first paragraph of this Article shall be considered mandatory health examination of the planting material. If the official sample is taken, movement and use of the planting material shall be forbidden pending the conclusion of laboratory analysis. If the hop wilt has been confirmed the planting material shall be destroyed in the manner as provided for in the first paragraph of Article 14 of these Rules. If the infected planting material originates in the parent hopfield this shall be subject to provisions of Article 20 of these Rules.

(4) Irrespective of the provisions of the first paragraph of this Article inspections may be carried out randomly by the phytosanitary inspector at any time and at any place in order to ensure plant health of hops.

Article 9
(symptoms of infection)

Hops shall be suspected to be infected with hop wilt if any of the following symptoms are present:

- primary leaves becoming yellow, resulting in necrosis at the leaves' edges and between ribs; edges of leaves turning upwards, the affected leaves falling down at a touch;
- as the illness develops, lateral shoots with cones wilt; leaves shrivel and fall off, cones shrivel and remain on the plant.;
- when cutting an infected hop-vine in its lower third, necrotic conducting tissue can be seen;
- in case of less pathogenic strains, hop-vines thicken, the bark becomes too small, cracks and becomes rough; the thickening of hop-vines goes in the direction from the ground upwards but only in the lower half of the plant;
- in case of more pathogenic strains, hop-vines do not thicken or only occasionally;
- in case of less pathogenic strains, the infected plants do not wither away and may start growing normally in the following growing season, the occurrence of symptoms depending on ecological conditions;
- in case of more pathogenic strains, the infected plants wither away within one or two growing seasons and symptoms do not depend on ecological conditions;
- first symptoms occur on individual plants and then spread from the ground upwards and on the neighbouring plants, in the direction of cultivation of the hopfield and to a smaller extent also to neighbouring rows.

Article 10
(examinations and laboratory testing)

(1) When the provider of public service or phytosanitary inspector, carrying out a visual examination, suspects the hops to be infected with hop wilt, samples of plants shall be taken and submitted for testing to the laboratory at the Institute for hop-growing and brewing, Žalec. Costs incurred by taking the official sample and by laboratory testing shall be covered by the owner of the hopfield, with the exception of samples pursuant to the annual programme referred to in Article 21 of these Rules.

(2) The hopfield shall be considered as infected if the laboratory analysis confirms at least one hop plant as infected.

The hopfield shall no longer be considered as infected if the hop wilt is not proven after four consecutive growing seasons or after the quarantine crop rotation has passed.

Article 11
(general measures)

(1) If the infection with hop wilt is confirmed, the provider of public service shall immediately inform the phytosanitary inspector who shall order measures laid down in Article 13 of these Rules.

(2) If during carrying out examinations referred to in Article 8 of these Rules danger is found to exist of the spread of the hop wilt or if it is found that the conditions laid down in these Rules are not met, the phytosanitary inspector shall order measures in accordance with regulations governing plant health.

Article 12
(responsibilities of owners at an endangered area)

(1) Owners of hopfields in an endangered area shall:

- carry out regular examinations of hop plants during the growing season and in case of suspected infection with hop wilt immediately inform the phytosanitary inspector and the provider of public service thereof;
- provide for regular cleaning and disinfection of tools, mechanisation, tractor-wheels, boots and other equipment used in hopfields.

(2) Owners of mechanisation providing services to owners of hopfields located in the endangered area shall:

- immediately inform the owner of the hopfield and the phytosanitary inspector or provider of public service if they suspect to have found plants infected with hop wilt;
- take care that machines and wheels are regularly cleaned of all plant parts and soil;
- prior to each moving from one hopfield to another, mechanically clean and disinfect the mechanisation;
- consider the manner of treating hopfields located in infested areas, as stipulated by Article 17 of these Rules.

(3) Taking fresh spent hops back to hopfields shall be forbidden.

(4) Taking spent hops from an infected area back to hopfields shall be forbidden.

III. MEASURES TO BE TAKEN IN AN INFECTED HOPFIELD

Article 13
(infected hopfield)

(1) If laboratory tests confirm infection of the hopfield with hop wilt, the phytosanitary inspector shall order the following measures:

- destruction of individual centres of infected hop plants and of plants within the radius of 3 m in accordance with Article 14 of these Rules; or

- on the basis of expert judgment of the provider of public service, destruction of the whole hopfield in accordance with Article 15 of these Rules;
- carrying out measures in compliance with Article 16 of these Rules;
- prohibition of production of hop planting material within the infected area.

(2) If laboratory tests confirm infection of hopfield with hop wilt, the phytosanitary inspector may allow the crop to be harvested, under the following conditions:

- that the borders of the infected hopfield are clearly marked and warning tables are placed stating that entry of not-authorised persons is prohibited;
- that owners pay regard to the measures specified in Article 17 of these Rules;
- that the owner examines the infected hopfields regularly each week until the harvesting ends;
- that at harvesting, the owner pays regard to measures specified in Article 18 of these Rules.

(3) When one hopfield in the row of continuous hopfields is found to be infected, the phytosanitary inspector may, upon the proposal of the provider of public service in agreement with the head of the Administration of the Republic of Slovenia for plant protection and seeds, order the same measures in respect of the not-infected hopfield as they apply for infected hopfields.

Article 14 (destruction of individual infected plants)

(1) During the growing season, the owner shall regularly destroy individual infected plants. The owner shall dig out the infected plants together with their under-ground parts and destroy them by burning at the infected hopfield or at some other appropriate place upon the permission of the phytosanitary inspector, or shall take these to the nearest appropriate dumping area.

(2) Any eventual re-emerging shoots from infected plants shall be treated with non-selective herbicide on the basis of glyphosate.

Article 15 (destruction of infested hopfield)

(1) Destruction of an infected hopfield shall mean treating hop plants with a non-selective systemic herbicide. Such plants may be dug out after minimum 14 days. The dug-out plants shall be removed by owners in compliance with the first paragraph of Article 14 of these Rules.

(2) If other conditions so permit, destruction of the infected hopfield may be partial at that part of the field where centres of infection are concentrated, as specified in the first indent of the first paragraph of Article 13 of these Rules.

Article 16 (quarantine crop rotation)

(1) Host plants referred to in the first and second indent of the second paragraph of Article 2 of these Rules shall be prohibited to be cultivated at destroyed hopfields for four consecutive growing seasons.

(2) Destroyed hopfields, which the owner would like to re-cultivate, shall be subject to a four-year quarantine crop rotation with cereals or grass.

(3) During the quarantine crop rotation, the owner shall regularly destroy all re-emerged shoots of hop plants in compliance with the second paragraph of Article 14 of these Rules and suppress broad-leaved weeds referred to in Article 2 of these Rules.

(4) In the case of not observing the quarantine crop rotation or its incorrect carrying out, the phytosanitary inspector may, on the basis of expert judgment of the provider of public service, order prolongation of the quarantine crop rotation.

(5) Hopfields which were infected with hop wilt shall be, after expiration of the quarantine crop rotation, permitted to be planted with plants with certificate B in compliance with regulations governing the national variety list.

Article 17

(obligations of owners in the infected area)

(1) Owners of infected hopfields and owners of hopfields directly adjacent to infected hopfields shall:

- carry out regular examinations of hop plants during the growing season and in case of suspected infection with hop wilt immediately inform the phytosanitary inspector and the provider of public service thereof;
- provide for regular cleaning and disinfection of tools, mechanisation, tractor-wheels, boots and other equipment, prior to each movement from the hopfield or field to another location;
- consider the order in which hopfields are cultivated, so as to first cultivate the not-infected and only then the infected hopfields;
- provide for regular suppression of broad-leaved weeds referred to in Article 2 of these Rules.

(2) Owners of fields directly adjacent to infected hopfields shall:

- provide for regular cleaning and disinfection of tools, mechanisation, tractor wheels, boots and other equipment after cultivation of such fields and prior to each moving to another location;
- consider the order in which hopfields are cultivated, so as to first cultivate the not-infected and only then the infected hopfields;
- provide for regular suppression of broad-leaved weeds referred to in Article 2 of these Rules.

(3) Moving consignment of plants and soil from the infected area into another endangered area referred to in Annex 1 shall be prohibited.

Article 18
(harvesting hops from infected hopfields)

(1) When harvesting hops in infected areas, phytosanitary inspector shall, upon the proposal of the provider of public service, order the following measures:

- to prepare and transport consignments in such a way as to prevent scattering and taking away of the hops;
- to provide for regular cleaning and disinfection of tools, mechanisation, tractor wheels, boots and other equipment which came in contact with hop vines from the infected hopfield and prior to each moving from one hopfield to another;
- thermal treatment of the mechanically crushed spent hops near the hop-picker or at an appropriate dumping area in the manner specified in Article 19 of these Rules, or thermal treatment of the uncut hop bines by burning these at the infected hopfield or at an appropriate location;
- manage the ejected hop scrap on the hop-picker in a way as to prevent its scattering.

(2) When the separation of harvested spent hops originating from infected hopfields and other spent hops is not ensured, all spent hops shall be subjected to provisions of the previous paragraph and the fourth paragraph of Article 12 of these Rules.

Article 19
(thermal decomposition of spent hops from an infected hopfield)

(1) For carrying out thermal treatment of mechanically crushed hop vines the owner shall form a hop dumping area so that the height and the width of the freshly formed pile exceed 2 m. Immediately upon setting up, such dumping pile shall be covered with foil so as to ensure warming also on the surface of the pile and to prevent scattering of the spent hops by the wind.

(2) When the mechanically crushed spent hops is to be transported to a far-away dumping area, the owner shall ensure direct loading of the spent hops from the hop-picker on the means of transport in a way as to prevent scattering around of the spent hops.

(3) After thermal decomposition, the spent hops may be taken away from the infected area after one-month period to the fields located outside the endangered area, at least 1 km far away from the hopfields, and where no host plants are produced. Also composting is considered as thermal decomposition.

(4) Production of hops and other host plants shall not be permitted at locations where the spent hops from infected hopfields was decomposed, composted, burned and gathered, for the period of 5 years.

Article 20
(parent hopfield)

Transportation of planting material with certificate B shall not be allowed from administrative units of Savinjsko area into other endangered areas.

IV. RECORDS, ANNUAL PROGRAMME AND COMPENSATION

Article 21 (records and annual programme)

(1) Administration of the Republic of Slovenia for plant protection and seeds (furtheron as: the Administration) shall be responsible for the implementation of these Rules.

(2) The Administration shall keep records on the extent of detected infection with hop wilt and on infected places or units of production, on the basis of data supplied by the provider of public service.

(3) The provider of public service shall regularly provide data referred to in Articles 6, 10, 13, 14, 15, 16 and 18 of these Rules at least concerning the time, location and the owner by units of hopfields in cultivation. The data shall represent the constitutional part of the record of hop commission.

(4) Annual programme of systematic control shall be confirmed by the Administration and prepared by the provider of public service on the basis of research knowledge, statistical principles and biology of hop wilt, and shall relate in particular to the number, origin, method and time of collecting samples for determining health condition of hops or infection with hop wilt.

Article 22 (compensation)

Costs for destruction under these Rules shall be covered by the owner of the hopfield. The owner of the hopfield shall be entitled to the compensation for destroyed plants, provided to have carried out all measures laid down in these Rules.

Article 23 (exceptions)

The Administration may permit derogation from measures laid down in these Rules for research or scientific reasons and varietal selection, provided that all measures necessary to keep hop wilt under control and to prevent its spread have been carried out.

V. TRANSITIONAL AND FINAL PROVISIONS

Article 24 (competent body)

Pending the establishment of the Administration, relevant tasks shall be performed by the Ministry of agriculture, forestry and food.

Article 25
(validity)

These Rules shall enter into force the next day to the publication in the Official Gazette of the Republic of Slovenia.

No 327-01-91/01
Ljubljana, 27 July 2001.

Annex 1: List of administrative units of areas endangered by hop wilt.

ADMINISTRATIVE UNITS OF SAVINJSKO AREA:

- Celje
- Žalec
- Mozirje

ADMINISTRATIVE UNITS OF KOROŠKO AREA:

- Dravograd
- Radlje ob Dravi
- Slovenj Gradec

ADMINISTRATIVE UNITS OF OTHER AREAS:

- Brežice
- Krško
- Lenart
- Ljubljana
- Ljutomer
- Ormož
- Ptuj
- Šmarje pri Jelšah

Annex 2: Infected areas within the territory of the Republic of Slovenia where the presence of hop wilt has been confirmed, by cadastral communities.

Cadastral communities; plot numbers:

Sp. Gorče 0988;

134, 133, 132, 127, 126, 131, 130, 129, 128.

Šmatevž 0989;

284, 283, 279/2, 425, 426, 427/1, 428/1, 429/1, 430/1, 431, 432, 433/1, 434/1, 435, 436/1, 438, 439, 440, 441/1, 457, 450, 461, 421/1, 421/2, 422/1, 306/1, 305, 302/2, 302/1, 298, 296, 291/3, 291/2, 291/1, 290, 288/2.

Trnava 0990;

971, 994/1, 992, 991, 1047, 292, 291/3, 291/2, 291/1, 290, 288/2, 305, 306/1, 302/1, 298, 296.

Orla vas 0991;

699, 700, 694, 87, 71/2, 71/1, 175/1, 173, 172, 171, 170, 169, 168, 167.

Latkova vas 1006;

1382/2, 1382/1, 882, 886, 887, 888, 889, 891, 892, 896, 897, 901, 708, 904, 907, 909, 910, 911, 912/1, 912/2, 913, 915, 916, 917, 918, 919/1, 919/2, 936/1, 937/1, 939/1, 940/1, 941/1, 73/1, 974/1, 975/1, 976, 977/1, 758, 759, 760, 761, 762, 763/1, 832, 833/1, 833/2, 901, 902, 904, 905, 906, 907, 909, 910, 911, 912/1, 912/2, 913, 914, 915, 916, 917, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727/1, 727/2, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 750, 700, 704, 705, 706, 707, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727/1, 727/2, 728, 729, 730, 925, 930, 932, 933/1, 934/2, 935/1, 936/1, 936/2, 937/1, 938/1, 939/1, 940/1, 941/1, 950, 954, 955, 959, 960, 963, 964, 967/1, 968/1, 969/2, 970/1, 971, 972, 973/1.

Gomilsko 1008;

835, 836, 837, 838, 839, 840, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 152/3, 152/1, 860, 453, 183, 170/4, 169, 168, 165, 164/1, 161/2, 159/2, 158, 155/2, 155/1, 154, 150/2, 150/1, 147/2, 144/1, 143/1, 184/1, 185, 152/2, 142/2, 142/1, 143/4, 143/3, 143/2, 159/1, 161/1, 164/2, 165, 170/3, 542/3.

Ojstriška vas 1009;

757/2, 756/2, 755/2, 752/2, 751/2, 748/2, 747/2, 747/3, 744/2, 743/2, 742/2, 637/1, 636, 635/1, 634, 633, 632, 631, 777/2, 773, 772, 771, 770/2, 770/1, 769/2, 768/2, 768/1, 767/2, 763/3, 761/2, 761/1, 759/2, 758/2, 1739, 1737/1, 1736, 1400/1, 1399, 1398, 1397, 1396, 1395, 1394, 1393, 1391, 1389, 1388, 740/2, 739/2, 738/2, 736/2, 735/2, 734/2, 733, 732/1, 637/2, 1684, 619, 620, 621, 622, 623, 624, 630/1, 630/2, 619, 620, 621, 622, 623, 624, 630/1, 630/2, 631, 632, 633, 1684, 1729, 637/2, 732/1, 733, 734/2, 736/2, 738/2, 739/2, 740/2, 742/2, 1388, 1389, 1391, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1741/1.

Prekopa 1010;

2611, 2608, 715/1, 715/2, 2617, 2614.

Vransko 1012;

614, 593/1, 585, 580, 688.

Šmartno pri Slovenj Gradcu:
22/1

Tešova 1011:
660/2, 660/1, 648, 646, 645.