

BLACK STEM RUST MANUAL

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INTRODUCTION

Overview

This Black Stem Rust (BSR) Manual is designed to aid state personnel in regulating the movement of the following plant genera:

Berberis (B)
Mahonia (M)
Mahoberberis (MH)

Purpose

This manual has the following purposes:

- It describes the procedures for certifying the movement of the following plant genera:
 - Berberis
 - Mahonia
 - MahoberberisThe procedures govern the movement of BM&MH from regulated and unregulated states within, into and through states regulated by 7CFR 301.38.
- It governs the procedures for preparing and shipping questionable varieties of BM&MH for identification and testing.
- It provides material to aid you in identifying BM&MH.
 - Botanical characteristics
 - An identification key
 - Photographic plates illustrating some common resistant and susceptible varieties of BM&MH
- It gives you general information about Black Stem Rust in the United States.

The procedures for moving BM&MH within, to and through protected states are a guide for state personnel enforcing 7CFR 301.38.. They also ensure that all state inspectors consistently and uniformly apply safeguard measures regulating the movement and distribution of BSR. Effective use of this manual will help prevent the introduction of susceptible varieties of BM&MH into protected areas. In addition to identification and procedural material, there are appendices to give supplemental information.

Roles and responsibilities:

Inspectors:

- Visit nurseries on a regular basis to check invoices, shipping orders, inventory lists, and the premises for resistant and susceptible BM&MH.
- Explain the provisions of 7CFR 301.38, The Black Stem Rust Quarantine.
- Schedule and perform an environs survey whenever appropriate.
- Keep a record of the environs survey with the nursery file.
- Track which nurseries are producing and/or selling BM&MH.

- Certify resistant BM&MH for movement.
- Refuse to certify susceptible BM&MH for movement.
- Remove and destroy susceptible BM&MH in regulated states.
- Issue compliance agreements for BM&MH movement within and/or to protected states when appropriate.
- Send BM&MH for identification and testing when appropriate.

State supervisory personnel

- Act as liaison between field personnel and the following individuals:
 - BM&MH identification specialists
 - Cereal Rust Laboratory (testing for susceptibility)
 - Federal Plant Protection and Quarantine personnel
 - Training personnel at the Professional Development Center
- Assist operators in answering questions and in problem solving
- Monitor work and review certificates issued by inspectors.
- Inform inspectors about changes in the program operation.
- Evaluate the BSR Manual and program operations
- Report procedural improvement suggestions to Federal Plant Protection and Quarantine personnel.

Federal Cooperators

- Revise the Federal Quarantine to meet the needs of the Black Stem Rust Program.

Compliance Agreement (CA)

A CA permits a nursery representative to send multiple shipments of BM&MH to authorized locations. The nursery representative can affix a certificate or label, or stamp on the package without the inspector being present. NOTE: The shipment must be inspected and approved by the state inspector prior to certification and shipment.

The BSR regulations, 7CFR 301.38-6 authorizes CA's for use with Limited Permits or Certificates. With the first shipment the shipping nursery should enclose the description of the cultivars for identification.

Limited Permits:

Limited permits may be issued, either individually or under compliance agreement, for regulated articles not eligible for certification when the applicant can meet the following conditions:

1. The destination(s) to which the regulated articles to be moved must be specified on the limited permit.
2. The destination(s) to which the regulated articles are to be moved must be outside of a protected area.
3. The regulated articles to be moved must be placed in a closed sealed container that prevents unauthorized removal of the regulated article and the container must remain sealed until the regulated article reaches the final destination state on the limited permit.
4. At the final destination, the sealed container must be opened only in the presence of an inspector or with the authorization of an inspector obtained expressly for that shipment.

These conditions can be met in a variety of ways. It will be up to the inspector issuing the limited permits or drawing up the compliance agreement to assure that the agreements section of the compliance agreement contains language sufficient to insure that the four conditions stated above are met.

Certificates:

A document which allows the unregulated movement of resistant varieties and cultivars of BM&MH within and into protected states. There are five types of certificates:

- A certificate PPQ form 540
- A sticky back label PPQ form 527
- A stamp (rubber stamp provided by the PPQ State Plant Health Director
- Authorized imprint on shipping documents.
- Certificate of Quarantine Compliance

For a shipper or nursery representative to receive a certificate, the BM&MH must meet the following conditions:

If the BM&MH specimen for shipment is:	Then the specimens must meet the following conditions specified in the nursery inspection manual:
Seed	Step 3 and Step 5
Cutting or plant	Step 3, Step 4 and Step 6

Type of certification for the shipment:

If the individual plants or pots are:	Certificate may be:
Labeled or tagged	A stamp affixed to the shipping document
Not labeled or tagged	Affix a sticky back label or other certification evidence to each pot or plant.

INSPECTING NURSERIES IN STATES PROTECTED BY 7CFR 301.38 (BLACK STEM RUST QUARANTINE)

Methods and Procedures

Prior to shipping BM&MH within the State or to a protected State, a nursery representative must notify the State inspector. The State inspector will then go to the nursery to certify movement.

Step 1—Explaining the Provisions of 7CFR 301.38

Give a copy of 7CFR 301.38 to the nursery representative, and using the information therein, explain the provisions to him or her. See Appendix ___ for a copy of 7CFR 301.38.

Step 2 – Reviewing Invoices, Shipping Orders, and Inventory Lists

1. Review all invoices, shipping orders, and inventory lists for incoming and outgoing shipment since your last visit to the nursery.
2. Record the following kinds of shipments:
 - BM&MH shipped intrastate
 - BM&MH shipped to a State regulated for black stem rust
 - BM&MH scheduled to be shipped intrastate
 - BM&MH scheduled to be shipped to a State regulated for black stem rust
3. Ask the nursery representative if there are any BM&MH on the premises other than those listed on the invoices, shipping orders, and inventory lists. If there are other BM&MH, ask the nursery representative to show them to you.

Step 3 – Determining if Each Variety is Correctly Named

Use the following instructions to determine variety resistance/susceptibility

Step 3a – Comparing names with 7CFR 301.38:

Compare the species/variety name(s) on the invoices, shipping orders, and inventory lists with the names listed in 7CFR 301.38. Then, check the premises for unreported BM&MH nursery stock. See Step 3b.

If you find the name:	Then classify the BM&MH as a:
Listed in 7CFR 301.38	Resistant variety
Not listed in 7CFR 301.38	Susceptible variety

3a.2 –Result of Comparison

If you have a:	And the BM&MH is a:	Then:
Resistant variety	Seed	Go to Step 5a
Resistant variety	Cutting or Plant	Go to Step 6a
Susceptible variety	Seed	<ol style="list-style-type: none"> 1. CLASSIFY as susceptible variety 2. Place a “HOLD” on the shipment. 3. REFUSE to certify seed for movement. 4. DETERMINE the origin of the seed. 5. With your supervisor’s concurrence, ORDER the seed destroyed. 6. DOCUMENT your action in the usual manner.
Susceptible variety	Cutting or plant	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a ‘HOLD’ on the shipment. 3. REFUSE to certify. 4. GIVE the nursery representative the option of destruction of the shipment OR sending the shipment for identification and testing under a limited permit. When sending material for identification, refer to the identification section page number. When sending material for testing, refer to the testing section page number.

Step 3b – Scouting Nursery Premise to Locate BM&MH

After you have completed your inspection and certification of the BM&MH listed on the invoices, shipping orders and inventory lists, scout the rest of the nursery looking for unreported BM&MH stock.

If you find:	And the nursery has:	Then
Unreported BM&MH	A compliance agreement	Go to Step 3a1. With your supervisor’s concurrence, REVOKE the compliance agreement
	No compliance agreement	Go to Step 3a
Only reported BM&MH		Go to Step 4

Step 4 – Determining if Plants and Cuttings Meet Age Requirement

If the genus is:	And is a:	And shows:	Then:
Berberis	Cutting or a plant	At least 2 year's growth	Go to Step 6
Berberis	Cutting or a plant	Less than 2 year's growth	REFUSE TO CERTIFY until age requirement is met
Berberis	Seed		Go to Step 5
Mahonia or Mahoberberis	Cutting or a plant	At least 1 year's growth	Go to Step 6
Mahonia or Mahoberberis	Cutting or a plant	Less than 1 year's growth	REFUSE TO CERTIFY until age requirement is met

Step 5 – Ensuring Seeds are True to Type

When the nursery intends to market BM&MH seeds within or into protected states, you must perform an environs survey or determine the parentage of the seed.

Step 5a – Determining the Origin of the Seed:

If the variety name is:	And the seed was:	And:	Then:
Listed in 7CFR 301.38	Produced at the nursery you are inspecting		Go to Step 5b and perform an environs inspection
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at a certified seed source	Go to Step 7 to certify shipment
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at an unknown source	Go to Step 5b to verify that parentage is from resistant stock
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at uncertified source	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. REFUSE to certify seed for movement. 3. DETERMINE the origin of the seed. 4. With your supervisor's concurrence, ORDER the seed destroyed.
Not listed in 7CFR 301.38			<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. REFUSE to certify seed for movement. 3. DETERMINE the origin of the seed. <p>With your supervisor's concurrence, ORDER the seed destroyed.</p>

Step 5b – Determining whether the Seeds are Resistant or Susceptible and Taking the Appropriate Action:

If you need to:	And:	Then:
Perform an environs survey (see Step 5c for details)	You find no BM&MH or only resistant varieties within ½ mile of the nursery in any direction	Go to Step 7 to certify shipment
Perform an environs survey (see Step 5c for details)	You find one or more susceptible varieties of BM&MH within ½ mile of the nursery in any direction*	<ol style="list-style-type: none"> 1. CLASSIFY seed as a susceptible variety. 2. REFUSE to certify seed for movement. 3. DETERMINE the origin of the seed. 4. With your supervisor's concurrence, ORDER the seed destroyed. 5. REMOVE AND DESTROY the susceptible plants, when applicable. 6. DOCUMENT your action in the usual manner.
Verify that parentage is from resistant stock	The parentage is unknown or known to be susceptible	(see above actions 1-6)
Verify that parentage is from resistant stock	The parentage is known to be resistant	Go to Step 7 to certify shipment

- To certify seed or plants grown from seed produced at that nursery, all susceptible varieties of BM&MH must have been removed from the area surrounding the nursery ½ mile in any direction. That removal must have taken place before seed production. If the nursery representative wants to certify BM&MH seed and environs survey must be performed at least once a year prior to bloom. A record of the survey should be maintained in the nursery file.

Step 5c – The Environs Survey

5c.1—Performing the environs survey

If a nursery wants to market seed of their own production or plants grown from seed of their own production, then survey the environs for BM&MH.

- a. Require the BM&MH seed-producing nursery to request the state inspector to perform the environs survey. The environs survey should be conducted prior to bloom that produces the seed requiring certification.
- b. Inform the nursery representative that you will be conducting a survey.
- c. Look for BM&MH within ½ mile of the nursery in all directions.
- d. Remove all susceptible varieties of BM&MH found during your environs survey.
- e. Keep record of the environs survey with the nursery file.
- f. Perform an environs survey every 5 years as long as the nursery is producing BM&MH seed or plants grown from their own seed.

Step 5c.2 – Timing for Environs Survey

If the nursery representative:	And:	And you find:	Then:
Has collected the seeds for marketing/shipping	You perform the environs survey before the BM&MH blooms	Susceptible varieties of BM&MH which you remove and destroy**	<ol style="list-style-type: none"> 1. INFORM the nursery representative that the seed is not certifiable. Seed produced this fall will be certifiable. 2. CLASSIFY seed as a susceptible variety. 3. REFUSE to certify seed for movement. 4. DETERMINE the origin of the seed. 5. DESTROY the seed with your supervisor's concurrence. 6. DOCUMENT your action in the usual manner.
Has collected the seeds for marketing/shipping	You perform the environs survey after the BM&MH blooms	Susceptible varieties of BM&MH which you remove and destroy	See above actions 1-6
Has collected the seeds for marketing/shipping	You perform the environs survey after the BM&MH blooms	Only resistant varieties of BM&MH	CERTIFY the seed for movement.
Is planning to collect seeds in the fall			Go to Step 5c.2

Note: An environs survey must be performed at least once every five years. Whenever you find susceptible varieties of BM&MH during the environs survey you must remove and destroy those susceptible plants.

Step 5c.3 – Timing (continued)

If the nursery representative:	And:	And you find:	Then:
Is planning to collect seeds in the fall	You perform the environs survey before the BM&MH blooms	Only resistant varieties of BM&MH or susceptible varieties which you remove and destroy	INFORM the nursery representative that the seed collected in the fall will be certifiable.
	You perform the environs survey after the BM&MH blooms	Only resistant varieties of BM&MH	INFORM the nursery representative that the seed collected in the fall will be certifiable
	You perform the environs survey after the BM&MH blooms	Susceptible varieties of BM&MH which you remove and destroy	INFORM the nursery representative that seed collected in the fall will not be certifiable. However seed collected the next calendar year will be certifiable

Note: An environs survey must be performed at least once every five years. Whenever you find susceptible varieties of BM&MH during the environs survey you must remove and destroy those susceptible plants

Step 6 – Ensuring Plants and Cuttings are True to Type

When a nursery intends to market within or into protected states, visually inspect each variety of BM&MH for consistency of characteristics.

Step 6a – Preliminary check of cuttings and plants.

If the variety name is:	And the plants were grown from:	Then:
Listed in 7CFR 301.38	Seed produced at that nursery	<ol style="list-style-type: none"> 1. PERFORM an environs survey – see Step 5c for details 2. GO to Step 6b after completing the environs survey
Listed in 7CFR 301.38	Seed produced at another nursery or the plants were not grown from seed	<ol style="list-style-type: none"> 1. DETERMINE the source 2. GO to Step 6b
Not listed in 7CFR 301.38		<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place A HOLD on the shipment. 3. REFUSE to certify shipment. 4. GIVE the nursery representative the option of destroying the shipment; or, sending the shipment for identification and testing under a limited permit. 5. TELL the nursery representative that identification and testing may take more than two years. 6. If identification was chosen, then after the ID is made, start at the beginning of this table after contacting your supervisor. 7. DOCUMENT you action in the usual manner.

Step 6b – Determining the Origin of Plants and Cuttings

If you have:	And you found:	And:	Then:
Performed an environs survey	Susceptible varieties of BM&MH which you remove during the survey		<ol style="list-style-type: none"> 1. CLASSIFY as susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment. 4. DESTROY shipment with concurrence of your supervisor. 5. DOCUMENT you action in the usual manner.
Performed an environs survey	No BM&MH or only resistant varieties		Go to Step 6c
Determined the source	The source is certified		Go to Step 6c
Determined the source	The source is unknown	The parentage is resistant	Go to Step 6c
Determined the source	The source is unknown	The parentage is unknown or the parentage is susceptible	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment. 4. GIVE nursery representative the option of destroying the shipment OR sending the shipment for identification and testing under limited permit. 5. TELL the nursery representative that identification may take more than 2 years. 6. If identification is chosen, then after the ID is made start at the beginning of this table after contacting your supervisor. 7. Document your action in the usual manner.
Determined the source	The source is not certified		Refer to 1 through 7 in the block above

Step 6c – Determining Whether the Plants and Cuttings are Resistant or Susceptible and Taking the Appropriate Action

If the plant variety:	And:	Then:
Shows only resistant characteristics		Go to Step 7 to certify the shipment
Shows only susceptible characteristics		<ol style="list-style-type: none"> 1. CLASSIFY the variety as susceptible. 2. Place a HOLD on the shipment. 3. REFUSE to certify the shipment. 4. ORDER the plants and cuttings destroyed. 5. DOCUMENT your action in the usual manner.
Shows both resistant and susceptible characteristics	Two percent or more of the plants and cuttings show susceptible characteristics	Refer to 1 through 5 on the block above.
Shows both resistant and susceptible characteristics	Less than two percent of the plants and cuttings show susceptible characteristics	<ol style="list-style-type: none"> 1. ROUGE out all plants and cuttings that show susceptible characteristics. 2. CLASSIFY the rest of the shipment as resistant. 3. CERTIFY rest of shipment for movement. 4. Go to Step 7 to certify the shipment.
Shows no characteristics that enable you to determine resistance or susceptibility		<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment. 4. GIVE nursery representative the option of destroying the shipment OR sending the shipment for identification and testing under limited permit. 5. TELL the nursery representative that identification may take more than 2 years. 6. If identification is chosen, then after the ID is made start at the beginning of this table after contacting your supervisor. 7. Document your action in the usual manner
Is a new variety for testing		Refer to 1 through 7 in the block above

Step 7 – Completing the Certification Forms

If you are:	And the shipment is for:	Then:
Certifying resistant BM&MH	Intrastate movement	Use federal or state certification
Certifying resistant BM&MH	Interstate movement	Use federal certification (Federal Certificate PPQ form 540, or sticker PPQ Form 527, or state certificate of quarantine compliance bearing federal certification or authorized imprint of federal certification)
Issuing a compliance agreement (CA)		Use federal CA form or equivalent state CA form
Sending BM&MH plants for identification	Intrastate or interstate movement	Contact PPQ State Plant Health Director in Minnesota
Sending BM&MH plants for testing	Intrastate	<ol style="list-style-type: none"> 1. Contact Cereal Rust Laboratory 2. See instructions on shipping BM&MH for testing.
Sending susceptible BM&MH plants through a protected state to a non-protected state for testing	Interstate	Contact federal or authorized state inspector for a Limited Permit

When you issue a certificate go to Step 8 to determine if you also need to issue a compliance agreement. Contact your supervisor if you have any questions.

Step 8 – Determining when to Establish a Compliance Agreement

NOTE: Use Step 8 only if the BM&MH is certifiable in Step 5 or Step 6.

If the nursery representative wants you to certify:	And based on past experience, the nursery representative is:	Then:
Only one BM&MH shipment for movement		ISSUE certification for only one shipment
Several BM&MH shipments	Reliable	ISSUE a compliance agreement to the nursery representative along with bulk supply of Certificate PPQ Form 540 or sticker certificate PPQ form 527 or other authorized certification such as document imprint or certificate of quarantine compliance.
Several BM&MH shipments	Unreliable	ISSUE certificates individually for each shipment. Do not issue a compliance agreement.

The compliance agreement authorizes the nursery representative to use certification only after the inspector has physically inspected and released the plants for movement.

INSPECTING NURSERIES IN STATES NOT PROTECTED BY 7CFR 301.38 (BLACK STEM RUST QUARANTINE)

Methods and Procedures

Prior to shipping BM&MH within the State or to a protected State, a nursery representative must notify the State inspector. The State inspector will then go to the nursery to certify movement.

Step 1—Explaining the Provisions of 7CFR 301.38

Give a copy of 7CFR 301.38 to the nursery representative, and using the information therein, explain the provisions to him or her.

Step 2 – Reviewing Invoices, Shipping Orders, and Inventory Lists

1. Review all invoices, shipping orders, and inventory lists for incoming and outgoing shipment since your last visit to the nursery.
2. Record all BM&MH shipments to state protected for BM&MH disregarding invoices with BM&MH shipments to States not protected for BM&MH
3. Ask the nursery representative if there are any BM&MH on the premises other than those listed on the invoices, shipping orders, and inventory lists. If there are other BM&MH, ask the nursery representative to show them to you.
4. Look at the enclosed pictures of plants to see if they match with the plants in the nursery

Step 3 – Determining if Each Variety is Correctly Named

Use the following instructions to determine variety resistance/susceptibility

Step 3a – Comparing names with 7CFR 301.38 to Determine Resistance and Susceptibility:

Compare the species/variety name(s) on the invoices, shipping orders, and inventory lists with the names listed in 7CFR 301.38. Then, check the premises for unreported BM&MH nursery stock. See Step 3b.

If you find the name:	Then classify the BM&MH as a:
Listed in 7CFR 301.38	Resistant variety
Not listed in 7CFR 301.38	Susceptible variety

3a.2 –Result of Comparison

If you have a:	And the BM&MH is a:	Then:
Resistant variety	Seed	Go to Step 5a
Resistant variety	Cutting or Plant	Go to Step 6a
Susceptible variety	Seed	<ol style="list-style-type: none"> 1. CLASSIFY as susceptible variety 2. REFUSE to certify seed for movement to a protected state. 3. DOCUMENT your action in the usual manner.
Susceptible variety	Cutting or plant	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a ‘HOLD’ on the shipment 3. REFUSE to certify the shipment for movement to a protected state. 4. GIVE the nursery representative the option of sending the shipment for identification and testing under a limited permit. 5. TELL the nursery representative that identification may take more than 2 years. 6. If identification is chosen, then after the ID is made, start at the beginning of this table after contacting your supervisor. 7. DOCUMENT your action in the usual manner 8. When sending material for identification, refer to the identification section page number. When sending material for testing, refer to the testing section page number.

Step 3b – Scouting Nursery Premise to Locate BM&MH

After you have completed your inspection and certification of the BM&MH listed on the invoices, shipping orders and inventory lists, scout the rest of the nursery looking for unreported BM&MH stock.

If you find:	And the nursery has:	Then
Unreported BM&MH	A compliance agreement	Go to Step 3a1. With your supervisor's concurrence, REVOKE the compliance agreement
	No compliance agreement	Go to Step 3a1
Only reported BM&MH		Go to Step 4

Step 4 – Determining if Plants and Cuttings Meet Age Requirement

If the genus is:	And is a:	And shows:	Then:
Berberis	Cutting or a plant	At least 2 year's growth	Go to Step 6
Berberis	Cutting or a plant	Less than 2 year's growth	REFUSE TO CERTIFY for movement to a protected state until age requirement is met
Berberis	Seed		Go to Step 5
Mahonia or Mahoberberis	Cutting or a plant	At least 1 year's growth	Go to Step 6
Mahonia or Mahoberberis	Cutting or a plant	Less than 1 year's growth	REFUSE TO CERTIFY for movement to a protected state until age requirement is met

Step 5 – Ensuring Seeds are True to Type

When the nursery intends to market BM&MH seeds into protected states, you must perform an environs survey or determine the parentage of the seed.

Step 5a – Determining the Origin of the Seed:

If the variety name is:	And the seed was:	And:	Then:
Listed in 7CFR 301.38	Produced at the nursery you are inspecting		Go to Step 5b and perform an environs inspection
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at a certified seed source	Go to Step 7 to certify shipment
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at an unknown source	Go to Step 5b to verify that parentage is from resistant stock
Listed in 7CFR 301.38	Not produced at the nursery you are inspecting	Produced at uncertified source	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. REFUSE to certify seed for movement to a protected state. 3. DOCUMENT your action in the usual manner.
Not listed in 7CFR 301.38			<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. REFUSE to certify seed for movement to a protected state. 3. DOCUMENT your action in the usual manner.

Step 5b – Determining whether the Seeds are Resistant or Susceptible and Taking the Appropriate Action:

If you need to:	And:	Then:
Perform an environs survey (see Step 5c for details)	You find no BM&MH or only resistant varieties within ½ mile of the nursery in any direction	Go to Step 7 to certify shipment for movement to a protected state.
Perform an environs survey (see Step 5c for details)	You find one or more susceptible varieties of BM&MH within ½ mile of the nursery in any direction*	<ol style="list-style-type: none"> 1. With the approval of the owner, REMOVE and DESTROY the susceptible plants. 2. CLASSIFY as a susceptible variety. 3. REFUSE to certify seed for movement to a protected state. 4. DOCUMENT your action in the usual manner.
Verify that parentage is from resistant stock	The parentage is unknown or known to be susceptible	(see above actions 1-4)
Verify that parentage is from resistant stock	The parentage is known to be resistant	Go to Step 7 to certify shipment for movement to a protected state.

- To certify seed or plants grown from seed produced at that nursery, all susceptible varieties of BM&MH must have been removed from the area surrounding the nursery ½ mile in any direction. That removal must have taken place before seed production. If the nursery representative wants to certify BM&MH seed and environs survey must be performed at least once a year prior to bloom. A record of the survey should be maintained in the nursery file.

Step 5c – The Environs Survey

5c.1—Performing the environs survey

If a nursery wants to market seed of their own production or plants grown from seed of their own production, then survey the environs for BM&MH.

- a. Require the BM&MH seed-producing nursery to request the state inspector to perform the environs survey. The environs survey should be conducted prior to bloom that produces the seed requiring certification.
- b. Inform the nursery representative that you will be conducting a survey.
- c. Look for BM&MH within ½ mile of the nursery in all directions.
- d. Remove all susceptible varieties of BM&MH found during your environs survey.
- e. Keep record of the environs survey with the nursery file.
- f. Perform an environs survey each year as long as the nursery is producing BM&MH seed or plants grown from their own seed.

Step 5c.2 – Timing for Environs Survey

If the nursery representative:	And:	And you find:	Then:
Has collected the seeds for marketing/shipping	You perform the environs survey before the BM&MH blooms*	Only resistant varieties of BM&MH	CERTIFY the seed for movement to a protected state.
Has collected the seeds for marketing/shipping	You perform the environs survey before the BM&MH blooms*	Susceptible varieties of BM&MH which you remove and destroy	INFORM the nursery representative that the seed is not certifiable. Seed produced this fall will be certifiable.
Has collected the seeds for marketing/shipping	You perform the environs survey before the BM&MH blooms*	Susceptible varieties of BM&MH which you do not remove and destroy	INFORM the nursery representative that the seed is not certifiable. Seed will not be certifiable as long as susceptible BM&MH are within ½ mile of the nursery.
Has collected the seeds for marketing/shipping	You perform the environs survey after the BM&MH blooms*	Only resistant varieties of BM&MH	CERTIFY the seed for movement.
Has collected the seeds for marketing/shipping	You perform the environs survey after the BM&MH blooms*	Susceptible varieties of BM&MH which you remove and destroy	INFORM the nursery representative that the seed is not certifiable. Seed for marketing or shipping can be collected in the fall of the following calendar year.
Is planning to collect seeds in the fall			Go to Step 5c.3

* If the nursery representative wants to certify BM&MH seed, perform an environs survey prior to bloom each year.

Step 5c.3 – Timing (continued)

If the nursery representative:	And:	And you find:	Then:
Is planning to collect seeds in the fall	You perform the environs survey before the BM&MH blooms*	Only resistant varieties of BM&MH or susceptible varieties which you remove and destroy	INFORM the nursery representative that the seed collected in the fall will be certifiable.
	You perform the environs survey after the BM&MH blooms*	Only resistant varieties of BM&MH	INFORM the nursery representative that the seed collected in the fall will be certifiable
	You perform the environs survey after the BM&MH blooms*	Susceptible varieties of BM&MH which you remove and destroy	INFORM the nursery representative that seed collected in the fall will not be certifiable. However seed collected the next calendar year will be certifiable if next year's environs survey is negative for susceptible BM&MH.
	You perform the environs survey after the BM&MH blooms*	Susceptible varieties of BM&MH which you do not remove and destroy	INFORM the nursery representative that the seed is not certifiable. Seed will not be certifiable as long as susceptible BM&MH are within ½ mile of the nursery.

* If the nursery representative wants to certify BM&MH seed, an environs survey must be conducted at least once a year before bloom.

Step 6a – Preliminary check of cuttings and plants.

If the variety name is:	And the plants were grown from:	Then:
Listed in 7CFR 301.38	Seed produced at that nursery	<ol style="list-style-type: none"> 1. PERFORM an environs survey – see Step 5c for details 2. GO to Step 6b after completing the environs survey
Listed in 7CFR 301.38	Seed produced at another nursery or the plants were not grown from seed	<ol style="list-style-type: none"> 1. DETERMINE the source 2. GO to Step 6b
Not listed in 7CFR 301.38		<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place A HOLD on the shipment. 3. REFUSE to certify shipment. 4. GIVE the nursery representative the option of destroying the shipment; or, sending the shipment for identification and testing under a Limited Permit. 5. TELL the nursery representative that identification and testing may take more than two years. 6. If identification was chosen, then after the ID is made, start at the beginning of this table after contacting your supervisor. 7. DOCUMENT you action in the usual manner.

Step 6b – Determining the Source of Plants and Cuttings

If Step 6a asked you to:	And you found:	And:	Then:
Perform an environs survey	Susceptible varieties of BM&MH which you remove during the survey		<ol style="list-style-type: none"> 1. CLASSIFY as susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment to a protected state. 4. DOCUMENT you action in the usual manner.
Performed an environs survey	No BM&MH or only resistant varieties		Go to Step 6c
Determine the source	The source is certified		Go to Step 6c
Determine the source	The source is unknown	The parentage is resistant	Go to Step 6c
Determine the source	The source is unknown	The parentage is unknown or the parentage is susceptible	<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment to a protected state. 4. GIVE nursery representative the option sending the shipment for identification and testing under Limited Permit. 5. TELL the nursery representative that identification may take more than 2 years. 6. If identification is chosen, then after the ID is made start at the beginning of this table after contacting your supervisor. 7. Document your action in the usual manner.
Determined the source	The source is not certified		Refer to actions 1 through 7 in the block above

Step 6c – Determining Whether the Plants and Cuttings are Resistant or Susceptible and Taking the Appropriate Action

If the plant variety:	And:	Then:
Shows only resistant characteristics		Go to Step 7 to certify the shipment
Shows only susceptible characteristics		<ol style="list-style-type: none"> 1. CLASSIFY the variety as susceptible. 2. Place a HOLD on the shipment. 3. REFUSE to certify the shipment to a protected state. 4. DOCUMENT your action in the usual manner.
Shows both resistant and susceptible characteristics	Two percent or more of the plants and cuttings show susceptible characteristics	Refer to 1 through 4 on the block above.
Shows both resistant and susceptible characteristics	Less than two percent of the plants and cuttings show susceptible characteristics	<ol style="list-style-type: none"> 1. ROUGE out all plants and cuttings that show susceptible characteristics. 2. CLASSIFY the rest of the shipment as resistant. 3. CERTIFY rest of shipment for movement. 4. Go to Step 7 to certify the shipment.
Shows no characteristics that enable you to determine resistance or susceptibility		<ol style="list-style-type: none"> 1. CLASSIFY as a susceptible variety. 2. Place a HOLD on the shipment. 3. REFUSE to certify shipment to a protected state. 4. GIVE nursery representative the option of sending the shipment for identification and testing under limited permit. 5. TELL the nursery representative that identification may take more than 2 years. 6. If identification is chosen, then after the ID is made start at the beginning of this table after contacting your supervisor. 7. Document your action in the usual manner
Is a new variety for testing		Refer to 1 through 7 in the block above

Step 7 – Completing the Certification Forms

If you are:	And the shipment is for:	Then:
Certifying resistant BM&MH	Intrastate movement	Use federal or state certification
Certifying resistant BM&MH	Interstate movement	Use federal certification (Federal Certificate PPQ form 540, or sticker PPQ Form 527, or state certificate of quarantine compliance bearing federal certification or authorized imprint of federal certification)
Issuing a compliance agreement (CA)		Use federal CA form or equivalent state CA form
Sending BM&MH plants for identification	Intrastate or interstate movement	Contact PPQ State Plant Health Director in Minnesota
Sending BM&MH plants for testing	Intrastate	8. Contact Cereal Rust Laboratory 9. See instructions on shipping BM&MH for testing.
Sending susceptible BM&MH plants through a protected state to a non-protected state for testing	Interstate	Contact federal or authorized state inspector for a Limited Permit

When you issue a certificate go to Step 8 to determine if you also need to issue a compliance agreement. Contact your supervisor if you have any questions.

Step 8 – Determining when to Establish a Compliance Agreement

NOTE: Use Step 8 only if the BM&MH is certifiable in Step 5 or Step 6.

If the nursery representative wants you to certify:	And based on past experience, the nursery representative is:	Then:
Only one BM&MH shipment for movement		ISSUE certification for only one shipment
Several BM&MH shipments	Reliable	ISSUE a compliance agreement to the nursery representative along with bulk supply of Certificate PPQ Form 540 or sticker certificate PPQ form 527 or other authorized certification such as document imprint or certificate of quarantine compliance.
Several BM&MH shipments	Unreliable	ISSUE certificates individually for each shipment. Do not issue a compliance agreement.

The compliance agreement authorizes the nursery representative to use certification only after the inspector has physically inspected

Procedures for Preparing and Shipping Material for Identification

Equipment Needed

1. Plant press or heavy weights
2. Newspapers
3. Corrugated paper
4. Pruning shears
5. Mailing container
6. Heat source for rapid drying

Preparation

1. Nursery representative is aware. Tell the nursery representative that the identification will take an indefinite amount of time.
2. Plants are safeguarded. Place a hold on the shipment. Ensure that the plants held at the nursery will remain separated from other plants in the nursery such that pollination will not occur between plants on hold and other plants in the nursery.

Cautions and warnings

If the specimens dry without pressing they are difficult to handle and identify.

Methods and procedures

Step 1 – Collecting and Preparing Specimens for Identification

1. Select specimens that have typical characteristics of the shipment. The specimens should include as many of the following structures as possible: leaves, stems, spines, flowers, berries and roots.
2. If the plant's length is less than 18 inches, then mount the whole plant. Otherwise cut the plant into sections with no sections being longer than 18 inches.
3. Place the plants or plant sections between several sections of newspaper or use a plant press if you have one. Press and dry plants as soon as possible after collection.
4. Sandwich the plants in their newspaper wrapping between two sheets of corrugated paper.
5. Apply pressure to the plants sandwiched between corrugated paper using either a plant press or heavy objects.
6. After about two weeks if you air dry, or when the specimens are dry using another heat source, carefully remove them from the press and then the newspaper.
7. Glue or tape each specimen to a rigid sheet of paper (like poster board).
8. Label the mounted sheets with the name of the nursery and location of the nursery, date collected and the inspectors name and number.
9. Place the mounted and labeled sheets in manila covers.
10. Package the mounted specimens so that they will not break during shipment.
11. Mark the outside of the package :FRAGILE, HANDLE WITH CARE AND DO NOT BEND" (Hand stamp only).
12. Send the package to the address that follows:

Step 2 – Sending Specimens for Identification

If the Specimens are for:	Then:
Identification	<ol style="list-style-type: none"><li>1. Contact the PPQ State Plant Health Director in Minnesota and request a Limited Permit.<li>2. Prepare specimens per instructions in Step 1.<li>3. Mail specimens according to instructions on the Limited Permit to the State Plant Health Director in Minnesota.
Resistance testing	Go to section for testing for susceptibility

Step 3 – Waiting for the results

1. Update the nursery representative on the status of the identification
2. When you receive the results from the identification immediately give them to the nursery representative.
3. Take the appropriate action on the balance of the shipment in the nursery.

Procedures for Preparing and Shipping Material for Testing for Susceptibility to Black Stem Rust

Equipment

1. Pruning shears
2. Shovel or spade
3. Soiless potting media to keep roots damp
4. Plastic bag
5. Shipping container

Preparation

1. Nursery representative is aware. Tell the nursery representative that the identification will take an indefinite amount of time.
2. Plants are safeguarded. Place a hold on the shipment. Ensure that the plants held at the nursery will remain separated from other plants in the nursery such that pollination will not occur between plants on hold and other plants in the nursery.

Cautions and warnings

1. If the specimens dry out enroute testing may not be possible.
2. Shipment must have a USDA permit affixed to the outside of the container when shipped.

Methods and procedures

Step 1 –Preparing Plants for Shipping

1. Trim stems to a maximum of 8 inches in length.
2. Wrap or pot plant using moist potting mixture, not field top soil. OR Remove all soil from roots, wash roots clean and then wrap roots in moist paper towels or other non-soil material to keep the roots from drying out enroute.
3. Wrap roots and non-soil material in plastic bag.

Step 2 – Sending Specimens for Testing

If specimens are for:	Then:
Resistance testing	<ol style="list-style-type: none">1. Contact the USDA-ARS Cereal Rust Laboratory for a Limited Permit2. Prepare specimens per instructions in Step 1.3. Mail specimens according to instructions on the Limited Permit to: USDA-ARS Cereal Rust Laboratory, University of Minnesota, St. Paul, Minnesota 55108
Identification	Go to section for identification

Step 3 – Waiting for the results

1. Update the nursery representative on the status of the testing
2. When you receive the results from the identification immediately give them to the nursery representative.
3. Take the appropriate action on the balance of the shipment in the nursery. Follow the instructions from your supervisor.

