Plant Risk Evaluator -- PRE™
Evaluation Report

Salvia x sylvestris 'Mainacht' MAY NIGHT -- Illinois

2017 Farm Bill PRE Project

PRE Score: 7 -- Accept (low risk of invasiveness)
Confidence: 42 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

Privacy: Public
Status: Submitted

Evaluation Date: May 10, 2017

This PDF was created on June 15, 2018

Plant Evaluated

Salvia x sylvestris 'Mainacht' MAY NIGHT

Image by Missouri Botanical Garden

Evaluation Overview

A PRE™ screener conducted a literature review for this plant (*Salvia x sylvestris 'Mainacht' MAY NIGHT*) in an effort to understand the invasive history, reproductive strategies, and the impact, if any, on the region's native plants and animals. This research reflects the data available at the time this evaluation was conducted.

General Information

Status: Submitted
Screener: Emily Russell
Evaluation Date: May 10, 2017

Plant Information

Plant: *Salvia x sylvestris 'Mainacht' MAY NIGHT*

If the plant is a cultivar, how does its behavior differs from its parent's?
Gardeners praise Salvia x sylvestris 'Mainacht' for its compact, upright habit, profuse flower production, long bloom time starting early in spring, deep flower color, cold hardiness, and heat tolerance. Salvia x sylvestris is a hybrid created by crossing S. nemorosa and S. pratensis. Sometimes cultivars of S. x sylvestris are mislabeled in the nursery trade.

Regional Information

Region Name: Illinois

Climate Matching Map

To answer four of the PRE questions for a regional evaluation, a climate map with three climate data layers (Precipitation, UN EcoZones, and Plant Hardiness) is needed. These maps were built using a toolkit created in collaboration with GreenInfo Network, USDA, PlantRight, California-Invasive Plant Council, and The Information Center for the Environment at UC Davis.

Click here to see the generated climate matching map for this region. This climate match database is hosted by GreenInfo Network and publicly accessible.

Evaluation Questions

These questions are based in an original article published at the University of California, Davis, and can be found on the PLOS One website, here: https://doi.org/10.1371/journal.pone.0121053

Invasive History and Climate Matching (Questions 1 - 6)

1. Has the species (or cultivar or variety, if applicable; applies to subsequent "species" questions) become naturalized where it is not native?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris is naturalized in the United States, Canada, Switzerland, and Finland. It is unknown if Salvia x sylvestris 'Mainacht' has contributed to these populations.

Reference(s):

- USDA NRCS (2017). USDA PLANTS Database: Salvia sylvestris (woodland sage).
- Randall, R. (2012). A Global Compendium of Weeds. 2nd Edition..

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2. Is the species (or cultivar or variety) noted as being naturalized in the US or world in a similar climate?

- Answer: **Yes**, which contributes **2** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris is naturalized in Illinois. It is uknown if Salvia x sylvestris 'Mainacht' has contributed to these populations.

Reference(s):

- USDA NRCS (2017). USDA PLANTS Database: Salvia sylvestris (woodland sage).

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3. Is the species (or cultivar or variety) noted as being invasive in the U.S. or world?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

No reports of damage from Salvia x sylvestris were found in the literature.

Reference(s):

- Randall, R. (2012). A Global Compendium of Weeds. 2nd Edition..

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4. Is the species (or cultivar or variety) noted as being invasive in the US or world in a similar climate?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

No reports of damage from Salvia x sylvestris were found in the literature.

Reference(s):

- Randall, R. (2012). A Global Compendium of Weeds. 2nd Edition..

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5. Are other species of the same genus (or closely related genera) invasive in a similar climate?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia pratensis (one of the parents of S. x sylvestris) is a Class A noxious weed in the state of Washington, but this is not a climate match for Illinois. There are 106 species of Salvia listed in the Global Compendium of Weeds (some of which are synonyms), but reviewing all of these is beyond the scope of this evaluation. No Salvia species were found on invasive lists in the Midwestern or Mid-Atlantic United States.

Reference(s):

- Randall, R. (2012). A Global Compendium of Weeds. 2nd Edition..
- WSDA Plant Protection Division (2016). Plants and Seeds Whose Sales Are Prohibited in Washington State.

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6. Is the species (or cultivar or variety) found predominately in a climate matching the region of concern?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris 'Mainacht' is widely cultivated and can be grown in many climates.

Reference(s):

- GBIF Secretariat (2016). GBIF Backbone Taxonomy: Salvia sylvestris L..

Impact on Native Plants and Animals (Questions 7 - 10)

7. Does this plant displace native plants and dominate (overtop or smother) the plant community in areas where it has established?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There are no reports of Salvia x sylvestris displacing native plants.

Reference(s):

- [Anonymous] .

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8. Is the plant noted as promoting fire and/or changing fire regimes?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There are no reports of Salvia x sylvestris changing fire regimes.

Reference(s):

- [Anonymous] .

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9. Is the plant a health risk to humans or animals/fish? Has the species been noted as impacting grazing systems?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There are no reports of Salvia x sylvestris being toxic or impacting grazing systems.

Reference(s):

- [Anonymous] .

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10. Does the plant produce impenetrable thickets, blocking or slowing movement of animals, livestock, or humans?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris 'Mainacht' is an herbaceous plant under three feet tall so it is unlikely to produce impenetrable thickets.

Reference(s):

- [Anonymous] .

Reproductive Strategies (Questions 11 - 17)

11. Does this species (or cultivar or variety) reproduce and spread vegetatively?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Medium** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris 'Mainacht' is clump-forming in habit and there is no evidence that it spreads vegetatively in the wild.

Reference(s):

- [Anonymous] .

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12. If naturally detached fragments from this plant are capable of producing new plants, is this a common method of reproduction for the plant?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris is easily propagated by cuttings, but there is no evidence that it commonly fragments in the wild.

Reference(s):

- [Anonymous] .

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13. Does the species (or cultivar or variety) commonly produce viable seed?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris produces seed in the wild: "its fruits ripen in as large numbers as in the case of S. nemorosa or S. pratensis, and have been found by experiment to be fertile in a proportion of more than 60 percent" (Marilaun). It is unknown if Salvia x sylvestris 'Mainacht' produces viable seed: "some hybrid wood sages are sterile, some will grow from seed but will not come true, and a few will come true from seed." No seedlings of 'Mainacht' were noted in a Chicago Botanic Garden horticultural performance trial. For the purposes of this evaluation, we will assume that 'Mainacht' produces viable seed since it has not been proven to be sterile.

Reference(s):

- Hawke, R. (2000). A Performance Appraisal of Hardy Sages. Chicago Botanic Garden Plant Evaluation Notes.
- Missouri Botanical Garden (2017). Salvia × sylvestris 'Mainacht' MAY NIGHT - Plant Finder.
- von Marilaun, A. Kerner, Oliver F. Wall, Macdonald M. Mary Franc, & Busk lady. Marian(Ba (1904). The Natural History of Plants, Their Forms, Growth, Reproduction, and Distribution: From the German of the Late Anton Kerner Von Marilaun.

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14. Does this plant produce copious viable seeds each year (> 1000)?

Answer / Justification:

There is no data about the quantity of viable seeds produced by Salvia x sylvestris 'Mainacht.' For the species, "its fruits ripen in as large numbers as in the case of S. nemorosa or S. pratensis, and have been found by experiment to be fertile in a proportion of more than 60 percent."

Reference(s):

- von Marilaun, A. Kerner, Oliver F. Wall, Macdonald M. Mary Franc, & Busk lady. Marian(Ba (1904). The Natural History of Plants, Their Forms, Growth, Reproduction, and Distribution: From the German of the Late Anton Kerner Von Marilaun.

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15. Is there significant germination (>25%) of seeds the next growing season, with no requirement of an infrequent environmental condition for seeds to germinate (i.e. fire) or long dormancy period?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris germinates readily; some cultivars are available in the retail trade as seeds (Merleau Blue, Rose Queen). It is unknown if 'Mainacht' produces viable seed, but it has not been proven sterile.

Reference(s):

- [Anonymous] .

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16. Does this plant produce viable seed within the first three years (for an herbaceous species) to five years (for a woody species) after germination?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris 'Mainacht' has a short juvenile period and can produce flowers within the first three years.

Reference(s):

- [Anonymous] .

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17. Does this plant continuously produce seed for >3 months each year or does seed production occur more than once a year?

- Answer: **Yes**, which contributes **1** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

Salvia x sylvestris 'Mainacht' can flower for more than three months each year.

Reference(s):

- Missouri Botanical Garden (2017). Salvia × sylvestris 'Mainacht' MAY NIGHT - Plant Finder.

Dispersal (Questions 18 - 20)

18. Are the plant's propagules frequently dispersed long distance (>100 m) by mammals or birds or via domestic animals?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence of dispersal by animals. Salvia pratensis (a parent of the hybrid S. x sylvestris) may be dispersed by adhering to animals or passing through the digestive tract of sheep (in low numbers), but estimates of distances were not available.

Reference(s):

- Zona, S. (2017). Fruit and Seed Dispersal of Salvia L. (Lamiaceae): A Review of the Evidence. The Botanical Review. 1–18.

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19. Are the plant's propagules frequently dispersed long distance (>100 m) by wind or water?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

"Despite having no visible means of dispersal, many Salvia species disperse for short to medium distances." Salvia pratensis (a parent of S. x sylvestris) floats well and may be dispersed by water or wind - 40m dispersal was noted in one instance.

Reference(s):

- Zona, S. (2017). Fruit and Seed Dispersal of Salvia L. (Lamiaceae): A Review of the Evidence. The Botanical Review. 1–18.

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20. Are the plant's propagules frequently dispersed via contaminated seed (agriculture or wildflower packets), equipment, vehicles, boats or clothing/shoes?

- Answer: **No**, which contributes **0** points to the total PRE score.
- The *screener* has a **Low** confidence in this answer based on the available literature.

Answer / Justification:

There is no evidence of accidental dispersal by people.

Reference(s):

- [Anonymous] .

Total PRE Score

PRE Score: 7 -- Accept (low risk of invasiveness)
Confidence: 42 / 100
Questions answered: 19 of 20 -- Valid (80% or more questions answered)

PRE Score Legend

The PRE Score is calculated by adding the point totals for each (answered) question.
< 13 : accept (low risk of invasiveness)
13 - 15 : evaluate further
> 15 : reject (high risk of invasiveness)

Questions Answered Legend

It is important to answer at least 16 questions to consider a PRE Score as "valid".
>= 16 : valid (80% or more questions answered)
<= 15 : invalid (not enough questions answered)

Organization Ownership and Content Privacy

Organization: 2017 Farm Bill PRE Project
Content Privacy: Public

Evaluation Reviewers

The PRE approach is to base decisions on science and make decisions by consensus of diverse horticultural stakeholders. The literature review and process of answering PRE's questions are based on science; the decisions of which plants to prioritize are based on consensus. To ensure this process is in place and that PRE is collaborative, volunteer stakeholders are recruited from each region to review evaluations. The following experts in their profession (plant science, conservation, or horticultural trade) have participated as volunteer PRE reviewers for this evaluation:

- Steve Worth December 22, 2017

This evaluation has a total of 1 reviewer(s).

Evaluation Issues

The following section lists all public issues for this evaluation. Issues provide a way for stakeholder reviewers to communicate any concerns or suggestions they might have with the plant or evaluation. Please email PlantRight@suscon.org if additional action is required to resolve open issues.

There are currently no issues associated with this evaluation.

About PRE and this Plant Evaluation Report

The PlantRight Plant Risk Evaluator -- PRE is an online database and platform enabling those involved in non-native, terrestrial plant production to know before they grow if a plant poses a regional invasive risk. This tool offers many benefits, and we encourage you to visit the PRE website (https://pre.ice.ucdavis.edu) for more information.

If you are a nursery trade association, or involved in the research, development or distribution of horticultural plants we invite you to join the PRE community. If you are a plant scientist, affiliated with a horticultural college or botanic garden, and would like to learn more about becoming a PRE Screener, please drop us an email, PlantRight@suscon.org, requesting a PRE Account.

PRE beta funding is provided by Sustainable Conservation (http://www.suscon.org/) and a USDA Farm Bill grant.