

United States Department of the Interior Bureau of Land Management

Environmental Assessment
DOI-BLM-UT-W010-2016-0001-EA

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Pseudomonas fluorescens Strain D7 Biopesticide Field Study

Location: Vernon, UT. R5W, T8S, Section 20. Treatment would be done within the Vernon Fire JU5Z ESR drill seeding project.

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***Pseudomonas fluorescens* Strain D7 Biopesticide Field Study**
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CHAPTER 1

Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental impacts of the establishment of the *Pseudomonas fluorescens* strain D7 biopesticide field study as proposed by the Utah State Office (UTSO) of the Bureau of Land Management (BLM). The EA is a field office site-specific analysis of potential effects that could result with the implementation of the Proposed Action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making the determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27.

An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No significant Impact (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative. A Decision Record, including a FONSI statement documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in Pony Express Record of Decision and Resource Management Plan (1990).

Background

Invasive plants are defined as “non-native plants whose introduction does, or is likely to cause economic or environmental harm or harm to human health,” based on the definition provided in Executive Order 131121. Invasive plants are compromising the ability to manage BLM lands for a healthy native ecosystem. Invasive plants can create a host of environmental and other effect, most of which are harmful to native ecosystem processes, including: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; increased potential for soil erosion and reduced water quality; alteration of physical and biological properties of the soil; loss of long-term riparian area function; loss of habitat for culturally significant plants, high economic costs of controlling invasive plants; and increased cost of keeping systems and recreational sites free of invasive species.

This EA will analyze the incorporation of a biopesticide into an overall integrated pest management approach. Biopesticides are a certain type of pesticide derived from such natural materials as animals, plants, bacteria, and certain minerals. They are broken down into three major classes:

Microbial pesticides, which consist of a microorganism (e.g., a bacterium, fungus, virus or protozoan) as the active ingredient.

- **Plant-Incorporated-Protectants (PIPs)** are pesticidal substances that plants produce from genetic material that has been added to the plant.

- **Biochemical pesticides** are naturally occurring substances that control pests by non-toxic mechanisms.

This project is incorporating by reference the ESR Plan for the 2015 Vernon Fire and the 2010 Normal Fire Year Rehabilitation and Stabilization Plan (NFYRSP). The analysis is in regards to the use of the D7 strain only. Any surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/20/2015).

Purpose and Need

The need for action is to determine the effectiveness of the microbial pesticide, *Pseudomonas fluorescens* strain D7, in controlling a number of invasive grass species. The purpose is to establish a field demonstration project involving the management of downy brome/cheatgrass (*Bromus tectorum*) with the microbial pesticide; *Pseudomonas fluorescens* strain D7 on 20-30 acres in the Vernon, UT area. The objective is to determine whether or not the *Pseudomonas fluorescens* strain D7 will provide suitable control of the targeted invasive species, downy brome/cheatgrass when incorporated into an integrated effort. The *Pseudomonas fluorescens* D7 strain has been approved by the EAP (Reg. No. 71975-U) (Appendix C).

Conformance with BLM Land Use Plan(s)

The alternatives have been reviewed to determine if they conform to the Pony Express Record of Decision and Resource Management Plan (as amended/maintained) goals and objectives as required by 43 CFR 1610.5. The alternatives described in this EA conform to the planning level decisions as follows:

- Wildlife and Fisheries Program Decision 4 (Page 37, Protect Habitat/Stipulations) and Decision 5 (Page 37, Improve Crucial Wildlife Habitats). BLM will protect and improve wildlife habitats including where conditions show a decline of desirable plant communities important for the greater sage grouse.
- Soil, Water, and Air Program Decision 1 (Page 30, Evaluate). All actions that involve soil, water and air resources will be evaluated on a case by case basis.

Similarly, the BLM is also tasked with managing the habitat for the greater sage-grouse in accordance with the management actions as defined in the Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Attachment 4 (Utah Greater Sage-Grouse Approved Resource Management Plan Amendment): special status species (section 2.2.1) and vegetation (section 2.2.2).

Relationships to Statutes, Regulations and Other Plans

The proposed action is consistent with Federal environmental laws and regulations, Executive Orders, and Department of Interior and BLM policies. It is in compliance with state laws and local and county ordinances and plans to the maximum extent possible.

In accordance with the 2007 Record of Decision issued for the Vegetation Treatments Using Herbicides and its Programmatic Environmental Impact Statement (PEIS), the BLM's rangeland management program is responsible for upland health management, assessment, and restoration; rangeland improvement planning and implementation; allotment planning and administration; and resource monitoring. (PEIS 2007, page 2-3)

Vegetation treatments on public lands also include activities to control invasive species such as noxious weed (of which downy brome/cheatgrass and medusahead rye have been identified as such). PEIS 2007, page 2-3. The goal of [the] integrated vegetation management, [the process utilized by the BLM], is to control invasive and unwanted vegetation, to prevent the spread of noxious weeds, to eradicate early-detected noxious weed species in areas where certain weeds have not yet become established, and to control weeds where they have become established. (PEIS 2007, page 2-3).

Though not tiered to the Draft Programmatic Environmental Impact Statement Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States (DRAFT PEIS 2015), the project meets the BLM's overarching goals for vegetation management are to improve biological diversity and ecosystem function, promote and maintain native and resilient plant communities, and reduce invasive vegetation and the risk of wildfire. Public lands are administered under the principles of multiple use and sustained yield. Thus, vegetation must be managed to protect and enhance the health of the land. (DRAFT PEIS 2015, pages 2-1).

The following laws, manuals and orders also apply:

1. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1712)
 - The act states that the BLM must manage public lands according to the principles of multiple use and sustained yield. These principles are further qualified in the act by the statutory duty that the BLM prevent unnecessary degradation of the public lands.
2. Public Rangelands Improvement Act of 1987 (43 U.S.C. 1901 et seq.)
 - The act states the BLM must manage, maintain, and improve public lands suitable for livestock grazing so that they become as productive as feasible.
3. The Federal Insecticide, Fungicide, and Rodenticide Act, as amended (Public Law PL) 92-516
 - The act requires all pesticide to be registered with the Environmental Protection Agency (EPA). The Federal Environmental Pesticide Control Act of 1972 amends the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, and requires the basis for registration to be whether or not a pesticide causes unreasonable adverse effects on man or the environment. The act also makes it illegal to use a registered pesticide in a manner inconsistent with its labeling. It also requires the certification of all personnel who supervise or apply restricted pesticides. The degree of certification must meet the classification requirements for proper storage,

transportation, or disposal of pesticides. The responsibility for administering the act is vested in the EPA.

4. Federal Noxious Weed Act of 1974 (7 U.S.C. 2801-2813), as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990.
 - This bill requires that each Federal Agency: (1) Designates a lead office and person trained in the management of undesirable plants; (2) Establish and fund an undesirable plant management program; (3) Complete and implement cooperative agreements with State agencies; and (4) Establish integrated management systems to control undesirable plant species.
5. Departmental Manual 517
 - Prescribes the Department's guidance for the use of pesticides on the lands and waters under its jurisdiction and for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended
6. Carlson Foley Act of 1968 (P.L. 90-583)
 - Provides for the authorization for reimbursement of expenses to State or local agencies for weed control on Federal lands.
7. Secretarial Order 3336
 - Section 5
 - (f) Apply science and research to improve the identification and protection of resistant and resilient sagebrush-steppe landscapes and the development of biocontrols and other tools for cheatgrass control to improve capability for long-term restoration of sagebrush-steppe ecosystems.
 - (h) Encourage efforts to expedite processes, streamline procedures, and promote innovations that can improve overall rangeland fire prevention, suppression and restoration efficiency and effectiveness.
 - (i) Explore opportunities to pilot new strategies to reduce the threat of invasive, nonnative plant species and rangeland fire to sagebrush-steppe ecosystems and greater sage-grouse conservation, including enhanced use of veteran fire crews and youth conservation teams, and efforts to further public-private partnerships to expand capacity for improved fire management.
 - section 7(b)
 - (vii) Implement large-scale experimental activities to remove cheatgrass and other invasive annual grasses through various tools; (viii) Commit to multi-year investments in science and research;

Other Plans, EISs and EAs that influence the scope of this document include:

- Proposed Pony Express RMP and Final EIS (9/1988)
- Draft Pony Express RMP and Draft EIS (5/1988)
- West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) (6/2010)
- Vernon (JU5Z) Emergency Stabilization and Rehabilitation Plan (7/2015)
- Draft Programmatic Environmental Impact Statement Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States (4/2015)

- Record of Decision and Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement (9/2007)

These documents and their associated information and analyses are hereby incorporated by reference, based on their use and consideration by various authors of this document. The attached Interdisciplinary Team Checklist, Appendix A was developed after consideration of these documents and their content.

Identification of Issues

Issues carried forward for analysis include rangeland health (soil/vegetation) and noxious/invasive weeds.

Many resources and their uses were considered by the interdisciplinary team and this review is documented in the checklist in Appendix A. Where resources are not present (NP) (not present in the area impacted by the proposed or alternative actions) or not impacted (NI) (present, but not affected to a degree that detailed analysis is required), a rationale for not considering them further is provided in the checklist.

CHAPTER 2

Description of Alternatives

Introduction

This EA focuses on the Proposed and No Action Alternatives. Because of the Research and Development nature of the action and the protocols discussed in the Vegetation PEIS (2007), other alternatives would not meet the purpose and need as discussed previously in this EA for this action. There were no other alternatives suggested by the public during the scoping period or identified by the SLFO interdisciplinary team. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

As stated earlier this EA incorporates by reference any surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan. A map of the project area is contained within Appendix B.

Proposed Action Alternative

Establishment of a field study involving the incorporation of the biopesticide *Pseudomonas fluorescens* strain D7 into an integrated approach for the management of downy brome/cheatgrass involving the use of revegetation activities. As per the WO IB 2015-082 study areas will not exceed 50 acres per field office. For this action it is anticipated that between 20-30 acres would be treated using the D7 strain.

Bacterial Information

These weed-suppressive bacteria:

- are applied in the in the fall and establish in the soil microbial community as weather cools;
- inhibit radicle formation, root growth and tiller initiation of these weeds;
- do not hurt native plants or crops;
- grow well in fall and spring coinciding with the early root growth of the fall annual weeds; and
- grow down roots and deliver the weed-inhibitory compound.

The bacterium, *Pseudomonas fluorescens* strain ACK55 (*P.f.* ACK55), inhibits only:

- cheatgrass (downy brome, *Bromus tectorum*),
- medusahead (*Taeniatherum caput-medusae*) and
- jointed goatgrass (*Aegilops cylindrica*).

Pseudomonas fluorescens strain D7 does not inhibit any economically important plants nor does it injure any native plant species found in the United States. Replicated field plots (3m² to 10A size) across many different years, and locations have been established by several collaborators. These field studies consistently show a minimum of 50% reduction in downy brome within three years of one bacterial application. In long-term field trials of quarter acre size in Washington, application of the bacteria resulted almost complete suppression of downy brome in 5 years, when winter wheat was in rotation or cereals continuously grown.

Additional applications of the bacteria may be needed in 3 to 6 years if downy brome or weed laden soil is transported into the site. With the reduction of downy brome, cereals are even more competitive and yields increased 5 to 30%. The bacteria suppress downy brome roots at a time when the weed is increasing its competitive root growth. Application of a herbicide in year 1 along with the bacteria increased the rate of downy brome reduction. In addition, no downy brome could be found in the seed bank three to seven years after a single application. Herbicides are able to kill the standing plant, but not able to work on the seed bank. The herbicide/bacterial interaction can rid a field of downy brome. These bacteria provide a novel means to reduce downy brome while limiting the need for tillage and chemical use for weed control.

The Toxicology/Pathology study by an independent lab showed that the weed-suppressive bacterium presents no mammalian toxicity or pathology.

Active Ingredient

0.23% *Pseudomonas fluorescens* strain ACK55; 2.6% spent medium; 97.2% water.

Pseudomonas fluorescens strain ACK55 contains a minimum of 30 million cells mL⁻¹. This product is a naturally occurring *Pseudomonas* bacterium from soil, which selectively reduces or suppresses the growth of the weeds cheatgrass/downy brome (*Bromus tectorum* L.), medusahead (*Taeniatherum caput-medusae* [L.] Nevski), and jointed goatgrass (*Aegilops cylindrica* L.) and does not hurt crops or rangeland plants. It is a preemergent bioherbicide.

Mode of Action

This bacterium specifically inhibits downy brome/cheatgrass and DOES NOT inhibit other grass and broadleaf crops and plants. The bacterium suppresses weed growth by the production of a labile secondary metabolite that inhibits root-cell elongation and tillering; reduces seedling vigor and overwintering; lowers seed production; and reduces viability of the seed bank. Once applied to the soil surface the bacterium can be carried into the soil by rain or irrigation. The bacteria grow well on residue, seeds, and roots. The bacteria move to the roots of the target weeds, seeds, or young seedlings and inhibit root-cell elongation. The suppressive compound inhibits lipopolysaccharide production in the cell wall and membrane and reduces root-cell wall elongation. If this inhibition of cell elongation occurs early in the seedling life, tiller initiation can be reduced. Visual effects of the bacteria working are a red color of the plant leaves due to stress and anthocyanin production, stunted plants with few tillers, and few seeds produced. With application of the weed-suppressive bacterium, the soil seed bank is reduced. The bacteria need to establish in the soil and on roots for suppression. The suppression of cheatgrass, medusahead, and jointed goatgrass by this bacterium may take two to five years. Dry conditions do not allow the bacteria to grow in the soil and colonize soil, residue, seed, and roots, and result in only minor suppression of the weed.

Directions for Use

This product is a preemergent bioherbicide and should be applied in late fall. For best results, make initial application in the late fall when daily high temperatures are less than 55°F and more than 0.2 inches of rain is imminent or will occur within 2 weeks. Activity may be low when applied to dry soil or heavy residue. Lack of rainfall within 2 weeks of application may reduce weed suppression. Application in late spring or summer will not allow the bacterium to establish in the soil and will result in low weed suppression. When sprayed on the soil

surface or coated on seed, this product will suppress the growth of downy brome/cheatgrass, medusahead or jointed goatgrass over time and is not likely to harm other plant species. Apply 1 pint of material or the equivalent of 40 billion cells acre⁻¹) in 100 or 400 gallons of water (5 to 20 gallons acre⁻¹) with mixing and spray the solution on the soil surface. Optimum conditions for application are cool air temperatures (<50° F) and wet conditions (0.25 inches of rain). Hot and dry conditions and dry soil surface limit the effectiveness of the application. For best results, apply the bacterium in the fall or very early spring before annual grass weed seed germination and when day-time temperatures are below 50°F. Use of the product would be in accordance with its labeling instructions (Appendix C).

No Action Alternative

No treatments would be established to study in integrated approach for the management of downy brome/cheatgrass, involving the biopesticide *Pseudomonas fluorescens* strain D7. The ES&R portion of the treatment would proceed as analyzed in DOI-BLM-UT-W000-2010-0001-EA and the Vernon ESR approved plan (JU5Z).

Alternatives Considered But Not Analyzed

1. Application of *Pseudomonas fluorescens* D7 to the soil. This alternative included site preparation using herbicide to manage any vegetation prior to applying biopesticide. Then applying the biopesticide to site late fall/early winter.
2. Application of *Pseudomonas fluorescens* strain D7 coated on seed and broadcast across the site.
3. Application of *Pseudomonas fluorescens* strain D7 is mixed with a preemergence herbicide, imazapic, and applied directly to the soil.

All three of these alternatives could have been selected but because the approved Vernon fire ESR plan had proposed to drill seed, the study design of coating the seed and then drill seeding was selected.

CHAPTER 3

Affected Environment & Environmental Impacts

The affected environment was considered and analyzed by an interdisciplinary team as based in the Interdisciplinary Team Checklist. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis are described.

This EA is tiered to the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) here after referred to as the 2010 plan and the approved Vernon (JU5Z) ESR Plan. The EA analyzed the environmental consequences of various treatments for ES&R work such as seeding methods and covering treatments. Seeding methods included drill seeding which is part of the proposed action. This action has been approved through this 2010 EA and subsequent July 2014 ESR plan. The action being considered for analysis is the application of *Pseudomonas fluorescens* D7 strain by coating the seed being drilled or the ESR Vernon fire plan.

The Vernon Fire (JU5Z) occurred in the summer of 2015 just North of the town of Vernon, UT. The actual location of the study plot is directly North of the BLM Vernon Fire station.

Rangeland Health (Soils/Vegetation)

Affected Environment

There are two soil types identified within plot location. Taylorsflat loam with 1 to 5 percent slopes occurs across roughly 80% of the plot are with Hiko Peak gravelly loam with 2 to 15 percent representing the other 20%. The Taylorsflat area is directly North of the Vernon fire station and the Hiko Peak would be the area North and West as the terrain rolls towards the highway. Ecological sites are 028AY215UT (Hiko peak) and 220UT(Taylorsflat). These two ecological sites are very similar in nature. The 215UT has a higher expected grass production and the production of shrubs are slightly different. The 215UT has a gravel component in its upper soil layers. A Rangeland Health evaluation has not been done at the scale of the fire rehab plan (50 acres) nor at the study plot scale (20-30 acres). The 2010 plan and 2014 Vernon ESR plan identified an immediate resource need to protect soil resources and the plant community from further degradation.

Environmental Impacts

Proposed Action

Pseudomonas fluorescens strain D7 does not inhibit any economically important plants nor does it injure any native plant species found in the United States. Replicated field plots (3m² to 10A size) across many different years, and locations have been established by several collaborators. These field studies consistently show a minimum of 50% reduction in downy brome within three years of one bacterial application. In long-term field trials of quarter acre size in Washington, application of the bacteria resulted almost complete suppression of downy brome in 5 years, when winter wheat was in rotation or cereals continuously grown. (Ann C. Kennedy, Tami L. Stubbs, Jeremy C. Hansen, USDA-ARS; Suppression of Downy Brome (Cheatgrass) in Wheat Using a Soil Bacterium). At this point in time from the research information done by Ann Kennedy and others at the USDA-ARS station there are

no known effects to the soil. With the potential for cheatgrass suppression, the success of the seeding of desired species would increase, providing for better soil stability and vegetation diversity, production and cover. These indicators together provide better collective habitat condition for wildlife as well. This would improve the likelihood of an ID team when doing an evaluation of land health standards to consider this area as providing for soil stability (standard one) and providing for improved wildlife habitat including late brood-rearing/wintering habitat for sage grouse.

As stated before any other impacts associated with the drill seeding have been analyzed in the 2010 plan.

No Action

The impacts associated with the fire rehab already approved will continue as analyzed in the 2010 plan but without the added component of the D7 biopesticide. This will not aid the BLM in determining new techniques to combat cheatgrass, promote innovations that can improve overall rangeland fire prevention and restoration, explore opportunities to pilot new strategies to reduce the threat of invasive, nonnative plant species and rangeland fire to sagebrush-steppe ecosystems and greater sage-grouse conservation, apply science and research to improve the identification and protection of resistant and resilient sagebrush-steppe landscapes and the development of *biocontrols*.

Soils could be impacted in the future based on the success of D7 to inhibit cheatgrass germination and therefore increasing the success of the seeding by reducing competition from cheatgrass. A stand of desirable perennial and woody species would provide for improved soil condition and more diverse species which improves habitat conditions and overall rangeland health. If the D7 is not added there still is the chance that natural conditions could combine and aid in the success of the seeding. With the abundance of cheatgrass present prior to the fire and the anticipated seed bank, the experience of most entities doing rehabilitation work, is that if nothing is done to control cheatgrass then it will always be present on site and continue to perpetuate a unnatural fire cycle.

Noxious/Invasive Weeds

Affected Environment

Prior to the Vernon fire in 2015, the vegetative community contained an dominant understory of Cheatgrass, with other vegetation such as, Bottlebrush squirreltail, Wyoming sagebrush, annual mustard, and a few wheatgrasses but they are of limited composition. The fire was not severe enough to damage the existing vegetation and so it is anticipated that the squirreltail will recover. Because of the existing presence of cheatgrass and the low intensity of the fire it is anticipated that the cheatgrass will re-infest the area from on-site seed source and outside seed source.

Environmental Impacts

Proposed Action

Establishment of the field study involving the incorporation of the biopesticide *Pseudomonas fluorescens* strain D7 into an integrated approach for the management of downy brome/cheatgrass involving the use of revegetation activities. Additional applications of the bacteria may be needed in 3 to 6 years if downy brome or weed laden soil is transported into the site. With the reduction of downy brome, cereals are even more competitive and yields increased 5 to 30%. It is hoped that native plants on site will have the same increased in biomass and composition.

The bacteria suppress downy brome roots at a time when the weed is increasing its competitive root growth. I trial research by Ann Kennedy Application of a herbicide in year 1 along with the bacteria increased the rate of downy brome reduction. In addition, no downy brome could be found in the seed bank three to seven years after a single application. Herbicides are able to kill the standing plant, but not able to work on the seed bank. The herbicide/bacterial interaction can rid a field of downy brome. These bacteria provide a novel means to reduce downy brome while limiting the need for tillage and chemical use for weed control.

No Action

The impacts associated with the fire rehab already approved will continue as analyzed in the 2010 plan but without the added component of the D7 biopesticide. This will not aid the BLM in determining new techniques to combat cheatgrass, promote innovations that can improve overall rangeland fire prevention and restoration, explore opportunities to pilot new strategies to reduce the threat of invasive, nonnative plant species and rangeland fire to sagebrush-steppe ecosystems and greater sage-grouse conservation, apply science and research to improve the identification and protection of resistant and resilient sagebrush-steppe landscapes and the development of *biocontrols*.

Cumulative Impacts

The affects from the rehabilitation of the Vernon fire has been considered in the ESR Plan for the 2015 Vernon Fire and the 2010 Normal Fire Year Rehabilitation and Stabilization Plan. While the rehabilitation through re-seeding the Vernon fire has a beneficial effect, there is an anticipated added cumulative impact in the expected control of Cheatgrass through the coating of the seed with *Pseudomonas fluorescence* strain D7 biopesticide.

There is no other action like this occurring with the area so there are no foreseeable past, or present actions. Depending on the outcome of the research plot, additional work with D7 may occur and possibly other biopesticides that may demonstrate the ability to suppress the production of cheatgrass. Additional applications of the bacteria may be needed in 3 to 6 years if downy brome or weed laden soil is transported into the site.

CHAPTER 5

Persons, Groups, and Agencies Consulted

During preparation of the EA, the public was notified of the proposed action by posting on the NEPA Register on October 22, 2015. The process used to involve the public included an email to the Public Lands Policy Coordinating Office. A public comment period was not offered because very little interest in the proposal has been expressed.

List of Persons, Agencies and Organizations Consulted

The following table identifies people, agencies and organizations that were consulted with during this EA.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
USFWS	Informal Section 7 consultation	USFW concurrence with BLM assessment, effects determination and resource protection measures received 6/7/2010
Public Lands Policy Coordinating Office	Coordinate with PLPCO regarding actions within brood/winter sage grouse habitat	PLPCO was provided the standard email and map when project was initiated.

List of Preparers

An interdisciplinary team prepared the document and analyzed the impact of the proposed action upon the various resources. They considered the affected environment and documented their assessment in the Interdisciplinary Team Checklist. Only those resources that would likely be impacted were carried forward into the body of the EA for further analysis.

Name	Title	Responsible for the Following Section(s) of this Document
Alan Bass	Project Manager	Author
Jerry Bullock	Rangeland Management Specialist	Soil and Vegetation
Masako Wright	Wildlife Biologist	Wildlife
Pam Schuller	Planning and Environmental Coordinator	NEPA Compliance

Refer also to the list of specialists identified in the Interdisciplinary Team Checklist.

Appendices

Appendix A, ID Team Checklist

Appendix B, Map

Appendix C, *Pseudomonas fluorescens* Draft Label

Appendix A, Interdisciplinary Team Checklist

Project Title: *Pseudomonas fluorescens* strain D7 biopesticide field study

NEPA Log Number: DOI-BLM-UT-W010-2016-0001-EA

File/Serial Number: ESR JU5Z

Project Leader: Alan Bass/Bruce Sillitoe

DETERMINATION OF STAFF:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource	Rationale for Determination	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
NI	Air Quality	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	10/27/15
NP	Areas of Critical Environmental Concern	Resource is not present.	Pamela Schuller	10/27/15
NI	Cultural Resources	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Mike Sheehan	11/18/15
NI	Environmental Justice	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	10/27/15
NI	Farmlands (Prime or Unique)	Soils that qualify as prime or unique farmlands could be present in the analysis area. The study area does not meet the requirements for prime farmland because the area is not irrigated nor is irrigation part of the alternatives. Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the	Jerry Bullock	11/17/15

Determination	Resource	Rationale for Determination	Signature	Date
		approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.		
NP	Aquatic Species Habitat	Resource is not present.	Masako Wright	11/2/15
NP	Wetlands/Riparian Zones and Floodplains	Wetlands/Riparian Zones and Floodplains, as defined by EO 11988, FEMA, HUD, Corps of Engineers and the LUP, are not present in the analysis area.	Pamela Schuller	10/27/15
NI	Fuels/Fire Management	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	11/17/15
NI	Geology / Mineral Resources/Energy Production	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Larry Garahana	10/29/15
NI	Greenhouse Gas Emissions	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	10/27/15
PI	Invasive Species/Noxious Weeds (EO 13112)	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 could impact this resource. Invasive and noxious weed species are present in the analysis area.	Jerry Bullock	11/17/15
NI	Lands/Access	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	11/17/15
NI	Livestock Grazing	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the	Jerry Bullock	11/17/15

Determination	Resource	Rationale for Determination	Signature	Date
		approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.		
NI	Migratory Birds	The analysis area supports important habitat for raptors and neotropical birds. Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Masako Wright	11/10/15
NP	National Historic Trails	Resource is not present.	Roxanne Tea	11/17/15
NI	Native American Religious Concerns	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	10/27/15
NI	Paleontology	There are no known significant paleontological resources present.	Larry Garahana	10/29/15
NI	Property Boundary Evaluation	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	11/17/15
PI	Rangeland Health Standards, Soil, and Vegetation Excluding Special Status Species,	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 could impact these resources.	Jerry Bullock	11/17/15
NI	Recreation	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Roxanne Tea	11/17/15
NI	Sage Grouse Habitat	The treatment area occurs outside of PHMA/GHMA. Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the	Masako Wright	11/10/15

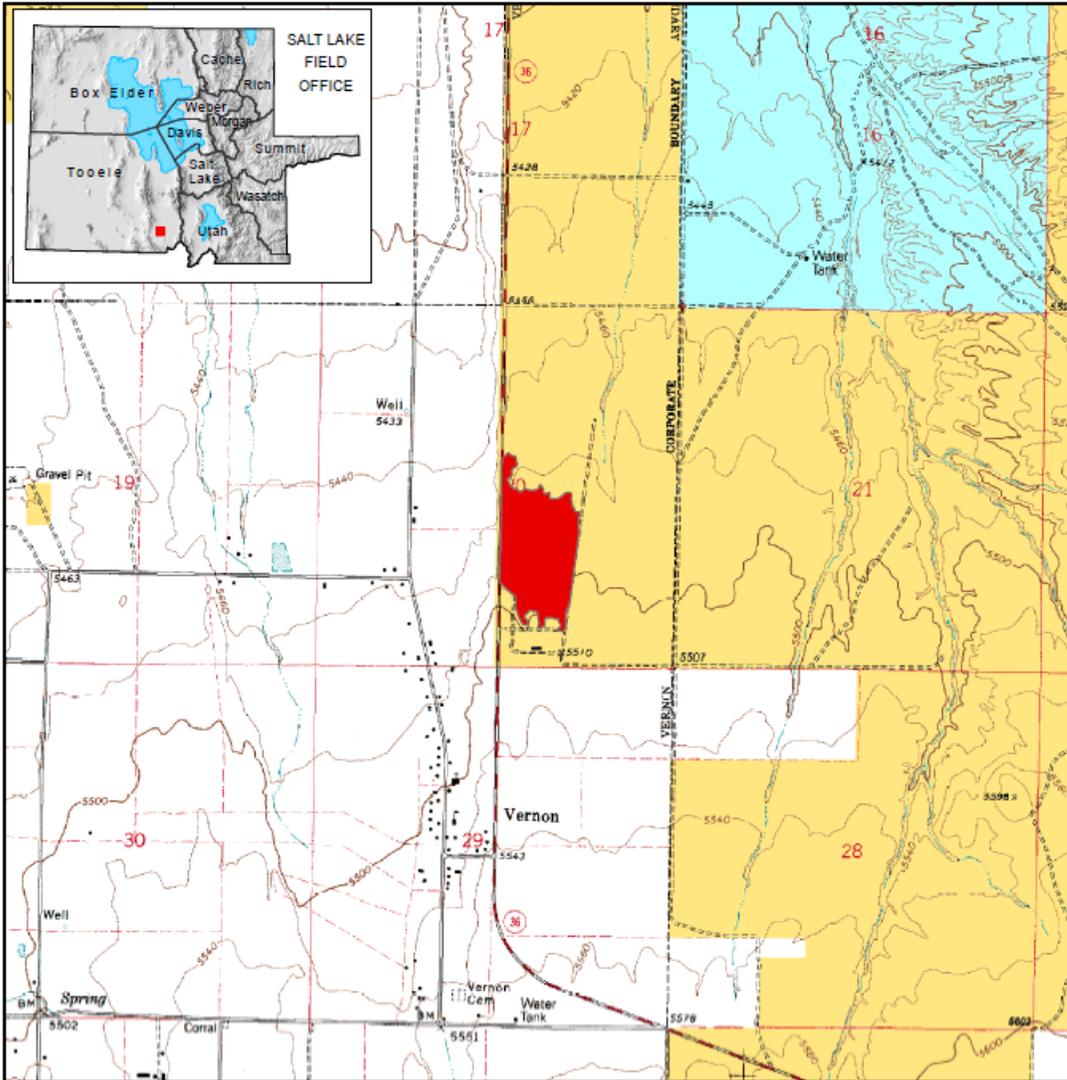
Determination	Resource	Rationale for Determination	Signature	Date
		approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 could impact this resource.		
NI	Socio-Economics	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource. Quantifiable additional or decreased economic impact to the local area would not be expected by the alternatives. Land use plan level decisions would not change.	Pamela Schuller	10/27/15
NI	Threatened, Endangered, Candidate or Special Status Plant Species	Listed and special status plant species are not known to occur within the analysis area. Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Jerry Bullock	11/17/15
NI	Threatened, Endangered, Candidate or Special Status Animal Species	Listed and special status animal species known to occur within the analysis area include the following species: short-eared owl, burrowing owl, ferruginous hawk, long-billed curlew, and kit fox. Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Masako Wright	11/10/15
NI	Visual Resources	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Roxanne Tea	11/17/15
NI	Wastes (hazardous or solid)	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Pamela Schuller	11/17/15

Determination	Resource	Rationale for Determination	Signature	Date
NI	Water Resources/Quality (drinking/surface/ground)	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Jerry Bullock	11/17/15
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers within the project area.	Pamela Schuller	10/27/15
NP	Wilderness/WSA	There are no Wilderness or Wilderness Study Areas present within the project area.	Roxanne Tea	10/27/15
NI	Lands with Wilderness Characteristics	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Roxanne Tea	11/17/15
NP	Wild Horses and Burros	There are no wild horse herd management areas in the project area.	Tami Howell	11/17/15
NI	Wildlife Excluding Special Status Species	Surface disturbing impacts would remain as described in the West Desert District Normal Fire Year Rehabilitation and Stabilization Plan (DOI-BLM-UT-W000-2010-0001-EA) and as detailed in the approved Vernon (JU5Z) ESR Plan (7/14/2014). Seed preparation and use of the <i>Pseudomonas fluorescens</i> strain D7 would not impact this resource.	Masako Wright	11/10/15

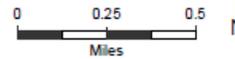
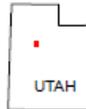
Reviewer Title	Signature	Date
Environmental Coordinator	<i>/s/Pamela Schuller</i>	<i>11/18/2015</i>
Authorized Officer	<i>/s/Bruce Sillitoe</i>	<i>11/18/2015</i>

Appendix B, Map

D7 Study plot
R 5 W



 D7 Study plot within Vernon Fire boundary



Land Status

-  Bureau of Land Management
-  Private
-  State

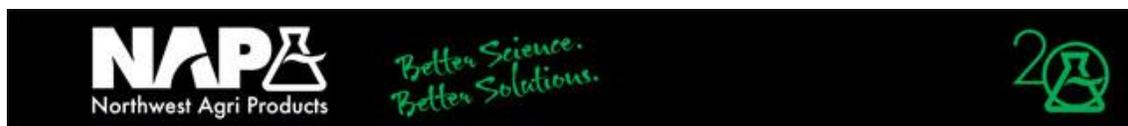
October 9, 2015

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



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Appendix C, *Pseudomonas fluorescens* Draft Label



D7

For suppression of Downy Brome (cheatgrass), Medusahead, Japanese Brome, and Jointed Goatgrass on Wheat, Barley, Triticale, Oats, and Rangeland.

ACTIVE INGREDIENT:

<i>Pseudomonas fluorescens</i> , strain D7*	95.00%
Other ingredients:	<u>5.00%</u>
	100.00%

*Contains a minimum of 2×10^{11} cells/g *Pseudomonas fluorescens* strain D7

EPA Reg. No. 71975-U
 EPA Est. No. 71975-WA-001
 Northwest Agricultural Products
 P.O. Box 3453
 Pasco, WA 99302
 (509)547-8234



**KEEP OUT OF REACH OF CHILDREN
 CAUTION**

Net weight: 0.44 lb. (200 grams)

Batch #

FIRST AID
<p>IF INHALED:</p> <ul style="list-style-type: none"> ▪ Move person to fresh air. ▪ If person is not breathing, call 9-1-1 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. ▪ Call a poison control center or doctor for further treatment advice.
<p>IF SWALLOWED:</p> <ul style="list-style-type: none"> ▪ Call a poison control center or doctor immediately for treatment advice. ▪ Have person sip a glass of water if able to swallow. ▪ Do not induce vomiting unless told to by a poison control center or doctor. ▪ Do not give anything by mouth to an unconscious person.
<p>IF IN EYES:</p> <ul style="list-style-type: none"> ▪ Hold eye open and rinse slowly and gently with water for 15-20 minutes. ▪ Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. ▪ Call a poison control center or doctor for treatment advice. ▪
<p>IF ON SKIN:</p> <ul style="list-style-type: none"> ▪ Take off contaminated clothing. ▪ Rinse skin with plenty of water for 15-20 minutes. ▪ Call a poison control center or doctor for further treatment advice. ▪

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact Infotrac at 1-800-535-5053 for emergency medical treatment information.

PRECAUTIONARY STATEMENTS – Agricultural Use

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Harmful if inhaled. Avoid breathing spray mist. Remove contaminated clothing and wash clothing before reuse. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- NIOSH approved respirator with at least N-95, R-95, or P-95 filter. Repeated exposures to high concentrations of microbial proteins can cause allergic reactions.

Follow manufacturer's instructions for cleaning and maintaining PPE. Mixers/loaders and applicators must wear a dust / mist filter respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposures to high concentrations of microbial proteins can cause allergic sensitization. If no such instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

OPTIONAL STATEMENT: [When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.]

USER SAFETY RECOMMENDATIONS

Users should:

Wash hands before eating, drinking, and chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS- Agricultural Use

Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift or runoff from treated areas.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forest, seed treatment facilities and non-commercial seed treatment activities, nurseries and greenhouses and handlers of agriculture pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard,

Do not enter or allow workers entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Water proof gloves
- Shoes plus socks

Non-commercial seed treatment products must contain all required WPS labeling as appropriate. See 40CFR156.200 et. Al. For seed treatment products, there may be a WPS exception statement that specifically applies to the Restricted Entry Interval (REI). If the treated seeds are soil injected or soil incorporated, the registrant may add the following statement directly after the REI statement in the Agriculture Use Requirements box. PR Notice 93-7, page 39. "Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated."

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Non-crop weed control is not within the scope of the Worker Protection Standard. See GENERAL INFORMATION section of this label for a description of non-crop sites.

DO NOT enter treated areas without protective clothing until sprays have dried.

D7 is a freeze dried powder that is dissolved in water and applied as a spray solution to the soil surface. Dissolve D7 in water and direct spray solution on the soil surface at a minimum rate of 1 gram (g)/acre. Optimum application conditions are cool (<50°F) and wet (measurable precipitation). Hot (>60°F) and dry conditions will limit the effectiveness of this application. For best results apply before rain in the fall or spring before germination and with daytime temperatures below 50° F.

D7 is for use in preemergence applications. Use coverage characteristics of the application equipment to determine the volume of water. Use 10 to 30 gallons of solution per acre for conventional-tillage applications. **For other applications use 15 to 50 gallons per acre of spray solution. If there is dense vegetation or residue use 20 to 50 gallons per acre of spray solution.**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Apply up to 4 times per 12 month period for a maximum annual application of 8 g/acre.

Cereal Grains: wheat, barley, triticale, oats

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Turf and grasses grown for seed: bluegrass, ryegrass, fescue, needle grass

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

D7 Master Label

Alfalfa

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Rangeland:

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Do not allow cattle to graze on applied rangeland within 24 hours of application.

Seed Treatment

This product may also be applied as a seed treatment for the above crops. Apply to seeds at rate of 2-4g (0.07 to 0.14 ounces) / 100 pounds of seed.

NOTE: Seed treated commercially or for sale must be dyed an unnatural color using an EPA approved dye before sale.

Federal law requires that bags containing treated seed shall be labeled with the following information: This seed has been treated with D7 herbicide. Do not use for feed, food or oil purposes. Store away from feeds and foodstuffs.

Do not use with other seed treatment products unless previous experience assures compatibility.

D7 may be applied as a water based slurry with other registered seed treatment products through standard slurry or mist-type commercial seed treatment equipment.

Do Not Apply Through Any Type of Irrigation System

Compatibility: Do not use with adjuvants.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: D7 must be stored in the original container at temperatures less than 32°F. Product will last longer if kept below 0°F. Store pesticides away from food, pet food, feed, seed, fertilizers and veterinary supplies.

Pesticide Disposal: Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. If not emptied in this manner, the bag may be considered an acute hazardous waste and must be disposed in accordance with local, state and federal regulations. When completely empty, offer for recycling if available, or dispose of bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Conditions of Sale and Limitation of Warranty and Liability:

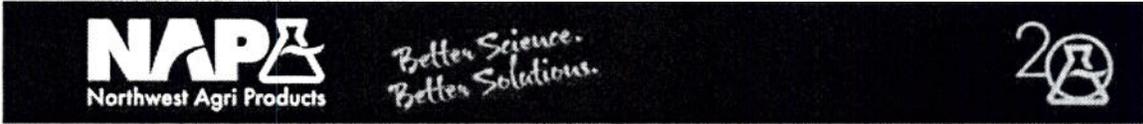
NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product are believed to be adequate and must be followed carefully, it is impossible to eliminate all the risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result due to such factors as weather conditions, presence or absence of other materials, or the manner of use or application, all of which are beyond the control of Northwest Ag Products, or the seller.

To the extent consistent with applicable law, the products sold to you are furnished “as is” by Northwest Ag Products. The manufacturer and the seller are subject only to the manufacturer’s warranties, if any, which appear on the label of the product sold to you. Except as warranted by this label, Northwest Ag Products, the manufacturer, or the seller makes no warranties, guarantees, or representations of any kind to the buyer or the user, either express or implied, or by usage of trade, statutory or otherwise, with regard to the product sold or use of the product, including, but not limited to, merchantability, fitness for a particular purpose or use, or eligibility of the product for any particular trade usage. To the extent consistent with applicable law, Buyer’s or user’s exclusive remedy, and Northwest Ag Products, the manufacturer’s or the seller’s total liability shall be limited to damages not exceeding the cost of the product. No agent or employee of Northwest Ag Products, or the seller is authorized to amend the terms of this warranty disclaimer or the product’s label or to make a presentation or recommendation different from or inconsistent with the label of this product.

To the extent consistent with applicable law, Northwest Ag Products, the manufacturer, or the seller shall not be liable for consequential, special, or indirect damages resulting from the use, handling, application, storage, or disposal of this product or for damages in the nature of penalties, and the buyer and the user waive any right that they may have to such damages.

© Northwest Agricultural Products



D7

For suppression of Downy Brome (cheatgrass), Medusahead, Japanese Brome, and Jointed Goatgrass on Wheat, Barley, Triticale, Oats, and Rangeland.

ACTIVE INGREDIENT:

<i>Pseudomonas fluorescens</i> , strain D7	95.00%
Other ingredients	5.00%
	100.00%

*Contains a minimum of 2×10^{11} cells/g *Pseudomonas fluorescens* strain D7

EPA Reg. No. 71975-U
EPA Est. No. 71975-WA-001
Northwest Agricultural Products
P.O. Box 3453
Pasco, WA 99302
(509)547-8234



BIO SCIENCE
PESTICIDES

KEEP OUT OF REACH OF CHILDREN

CAUTION

Net weight: 0.44 lb. (200 grams)

Batch #

FIRST AID	
IF INHALED:	
<ul style="list-style-type: none"> ▪ Move person to fresh air. ▪ If person is not breathing, call 9-1-1 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. ▪ Call a poison control center or doctor for further treatment advice. 	
IF SWALLOWED:	
<ul style="list-style-type: none"> ▪ Call a poison control center or doctor immediately for treatment advice. ▪ Have person sip a glass of water if able to swallow. ▪ Do not induce vomiting unless told to by a poison control center or doctor. ▪ Do not give anything by mouth to an unconscious person. 	
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact Infotrac at 1-800-535-5053 for emergency medical treatment information.	

ACCEPTED

AUG 29 2014

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No.

71975-4

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS & DOMESTIC ANIMALS
CAUTION**

Harmful if inhaled. Avoid breathing spray mist. Remove contaminated clothing and wash clothing before reuse. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- NIOSH approved respirator with at least N-95, R-95, or P-95 filter. Repeated exposures to high concentrations of microbial proteins can cause allergic reactions.

Follow manufacturer's instructions for cleaning and maintaining PPE. Mixers/loaders and applicators must wear a dust / mist filter respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposures to high concentrations of microbial proteins can cause allergic sensitization. If no such instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

OPTIONAL STATEMENT: [When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.]

USER SAFETY RECOMMENDATIONS

Users should:

Wash hands before eating, drinking, and chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply when weather conditions favor drift or runoff from treated areas.

ACCEPTED

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forest, seed treatment facilities and non-commercial seed treatment activities, nurseries and greenhouses and handlers of agriculture pesticides. It contains requirements for training, decontamination, notification and emergency assistance, It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirement in this box only apply to uses of this product that are covered by the Worker Protection Standard,

Do not enter or allow workers entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Water proof gloves
- Shoes plus socks

“Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.”

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

DO NOT enter treated areas without protective clothing until sprays have dried.

D7 Master Label

D7 is a freeze dried powder that is dissolved in water and applied as a spray solution to the soil surface. Dissolve D7 in water and direct spray solution on the soil surface at a minimum rate of 1 gram (g)/acre. Optimum application conditions are cool (<50°F) and wet (measurable precipitation). Hot (>60°F) and dry conditions will limit the effectiveness of this application. For best results apply before rain in the fall or spring before germination and with daytime temperatures below 50° F.

D7 is for use in preemergence applications. Use coverage characteristics of the application equipment to determine the volume of water. Use 10 to 30 gallons of solution per acre for conventional-tillage applications. **For other applications use 15 to 50 gallons per acre of spray solution. If there is dense vegetation or residue use 20 to 50 gallons per acre of spray solution.**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Apply up to 4 times per 12 month period for a maximum annual application of 8 g/acre.

Cereal Grains: wheat, barley, triticale, oats

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Turf and grasses grown for seed: bluegrass, ryegrass, fescue, needle grass

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Alfalfa

Apply at preemergence before or after seeding.

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Rangeland:

Dilute product in water to apply at a rate of 2g (0.07 ounces) / acre

For ground application, apply in 10 to 50 gallons of spray per acre.

D7 Master Label

For aerial application use 2 to 10 gallons of water per acre. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Do not allow cattle to graze on applied rangeland within 24 hours of application.

Seed Treatment

This product may also be applied as a seed treatment for the above crops. Apply to seeds at rate of 2-4g (0.07 to 0.14 ounces) / 100 pounds of seed.

Do not use with other seed treatment products unless previous experience assures compatibility.

D7 may be applied as a water based slurry with other registered seed treatment products through standard slurry or mist-type commercial seed treatment equipment.

Do Not Apply Through Any Type of Irrigation System

Compatibility: Do not use with adjuvants.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: D7 must be stored in the original container at temperatures less than 32°F. Product will last longer if kept below 0°F. Store pesticides away from food, pet food, feed, seed, fertilizers and veterinary supplies.

Pesticide Disposal: Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable Container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. If not emptied in this manner, the bag may be considered an acute hazardous waste and must be disposed in accordance with local, state and federal regulations. When completely empty, offer for recycling if available, or dispose of bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Conditions of Sale and Limitation of Warranty and Liability:

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product are believed to be adequate and must be followed carefully, it is impossible to eliminate all the risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result due to such factors as weather conditions, presence or absence of other materials, or the manner of use or application, all of which are beyond the control of Northwest Ag Products, or the seller.

To the extent consistent with applicable law, the products sold to you are furnished "as is" by Northwest Ag Products. The manufacturer and the seller are subject only to the manufacturer's warranties, if any, which appear on the label of the product sold to you. Except as warranted by this label, Northwest Ag Products, the manufacturer, or the seller makes no warranties, guarantees, or representations of any kind to the buyer or the user, either express or implied, or by usage of trade, statutory or otherwise, with regard to the product sold or use of the product, including, but not limited to, merchantability, fitness for a particular purpose or use, or eligibility of the product for any particular trade usage. To the extent consistent with applicable law, Buyer's or user's exclusive remedy, and Northwest Ag Products, the manufacturer's or the seller's total liability shall be limited to damages not exceeding the cost of the product. No agent or employee of Northwest Ag Products, or the seller is authorized to amend the terms of this warranty disclaimer or the product's label or to make a presentation or recommendation different from or inconsistent with the label of this product.

To the extent consistent with applicable law, Northwest Ag Products, the manufacturer, or the seller shall not be liable for consequential, special, or indirect damages resulting from the use, handling, application, storage, or disposal of this product or for damages in the nature of penalties, and the buyer and the user waive any right that they may have to such damages.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF NORTHWEST AGRICULTURAL PRODUCTS AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF NORTHWEST AGRICULTURAL PRODUCTS OR SELLER, THE REPLACEMENT OF THE PRODUCT.

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U.S. ENVIRONMENTAL PROTECTION AGENCY
 Office of Pesticide Programs
 Biopesticides and Pollution Prevention Division (7511P)
 1200 Pennsylvania Avenue NW
 Washington, DC 20460

NOTICE OF PESTICIDE REGISTRATION

Registration
 Reregistration

(under FIFRA, as amended)

EPA Reg.
 Number:
71975-4

Date of Issuance:
August 29, 2014

Term of
 Issuance: **Unconditional**

Name of Pesticide Product:
D7

Name and Address of Registrant (include ZIP Code):

Northwest Agricultural Products
821 South Chestnut Ave.
Pasco WA 99301

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his or her motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This registration does not eliminate the need for continual reassessment of the pesticide. If EPA determines at any time, that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) and is subject to the following terms and conditions:

1. Revise the EPA Registration number on the label to read, "EPA Reg. No. 71975-4."
2. Submit two (2) copies of the revised final printed labeling before you release the product for shipment

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

 Robert McNally, Director
 Biopesticides and Pollution Prevention Division (7511P)

Date:
August 29, 2014