Benton Voluntary Stewardship Plan Implementation

Biennial Report – 2019 | Prepared by BERK Consulting on behalf of the Benton Conservation District
Reviewed and authorized by Work Group on June 20, 2019

Overview

This document provides a biennial report on the implementation of the Benton Voluntary Stewardship Plan Work Plan. It is based on the State Conservation Commission's VSP Policy Advisory #05-18, and fulfills the requirement to "[…] conduct periodic evaluations, institute adaptive management, and provide a written report of the status of plans and accomplishments to the county and to the Commission," as determined by RCW 36.70A.720.[1]

DEADLINES

Monitoring deadlines are determined based on when the County was funded for VSP. For Benton County:

- The 2-year biennial report is due August 30, 2019.
- The first 5-year status report is due in January 12, 2021.

ROLES

Following is an excerpt from the Work Plan on Monitoring Roles in Section 8.3 that indicates Benton Conservation District (BCD) is the primary technical service provider and lead on conducting monitoring:

"*… the Benton Conservation District (BCD) is the lead Technical Service provider. Benton County Planning Department (BCPD) will serve as administrator of the work plan monitoring and implementation. Exhibit 8-2 illustrates ongoing, annual, and biennial and five-year activities by the BCD and other implementers. Details are included in the Adaptive Management Matrix in Appendix I.*

- *Ongoing activities by BCD include conservation practices and voluntary enhancement with willing landowners and VSP Participation events. As part of cost-share agreements, the Technical Assistance Provider will prepare an implementation plan and on-site monitoring as appropriate.*
- *Annually, BCD will evaluate the Tracking Tool statistical output to describe conservation practices and voluntary enhancement projects entered during the prior year and present it to the Work Group. Annually, BCD will prepare an annual report describing VSP implementation based on the technical assistance agreements with willing landowners and any other grants or programs that implement VSP efforts.*
- *Biennially and every five years, BCD would conduct mapping and aerial interpretation, surveys, or convene an expert panel on fish and wildlife or other critical area conditions where needed to address a lack of data or a need for interpretation. There could be a voluntary subgroup of the VSP Work Group with expertise in critical areas and agriculture who can review monitoring results in detail and provide recommendations to the full Work Group.*"

The following flow chart summarizes ongoing, annual, biennial/5-year monitoring activities.

[1] RCW 36.70A.720: https://app.leg.wa.gov/RCW/default.aspx?cite=36.70A.720

Exhibit 1. Exhibit 8-2 from the Work Plan. Adaptive Monitoring Matrix

Ongoing

- Conservation Practices and Voluntary Enhancement Projects with Willing Landowners
- VSP Participation Events / Activities

Annual Monitoring

Type 1

- Tracking Tool: Conservation Practices and Voluntary Enhancement Projects
- Annual Agency Reports

Biennial and 5-Year Monitoring

Type 2

- Mapping and Aerial Interpretation
- Producer Survey (Field Sample, Phone, Online)
- Convene Expert Panel (On a Critical Area System)

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Biennial Report

REQUIREMENTS

The biennial report guidance is based on goals listed in RCW 36.70A.700(2). For each goal/topic, the table below identifies the location in the report.

Table 1. Biennial Report Topic and Location in Report

Biennial Report Topic	Summary and Location in Biennial Report
1. The protection and enhancement of critical areas within the area where agricultural activities are conducted;	See Section 2, Critical Areas Conditions and Stewardship. BCD has worked with growers and state agencies to advance critical areas protections in the agricultural intersect. BCD has advanced monitoring of groundwater. BCD has developed more protocols for imagery analysis to better understand critical areas such as shrub steppe.
2. The maintenance and improvement of the long-term viability of agriculture;	See Section 0, This report identifies progress and activities in relation to the eight biennial report topics under the following headings: 1. Agricultural Conditions and Viability 2. Critical Areas Conditions and Stewardship 3. Conservation Practices 4. Outreach Goals and Status This biennial report does reference elements of the Work Plan for context. Consistent with the State Conservation Commission's VSP Policy Advisory #05-18 this biennial report is informational in nature. The activities and projects in this report illustrate the progress of BCD, the Work Group, the agriculture community, and other entities to promote agricultural viability, protect and enhance critical areas, support voluntary conservation practices, and attract grower participation. This biennial report is not a detailed accounting of achievements of goals and benchmarks, nor does it present a new intersect analysis of critical areas and agriculture. The Work Plan was approved recently in 2018 and the intersect mapping was coordinated with the County's efforts to update its critical areas mapping at that time and used recent agricultural inventory information from the

Biennial Report Topic	Summary and Location in Biennial Report
	State (2016) and BCD. Goal and benchmark achievement and updating intersect analysis would be subjects for future reports, particularly the 5-year report due January 2021. Agriculture Conditions and Viability. The area of irrigated and dryland agriculture has increased in Benton County per WSDA information.
3. Reducing the conversion of farmland to other uses;	See Section 0, This report identifies progress and activities in relation to the eight biennial report topics under the following headings: 5. Agricultural Conditions and Viability 6. Critical Areas Conditions and Stewardship 7. Conservation Practices 8. Outreach Goals and Status This biennial report does reference elements of the Work Plan for context. Consistent with the State Conservation Commission's VSP Policy Advisory #05-18 this biennial report is informational in nature. The activities and projects in this report illustrate the progress of BCD, the Work Group, the agriculture community, and other entities to promote agricultural viability, protect and enhance critical areas, support voluntary conservation practices, and attract grower participation. This biennial report is not a detailed accounting of achievements of goals and benchmarks, nor does it present a new intersect analysis of critical areas and agriculture. The Work Plan was approved recently in 2018 and the intersect mapping was coordinated with the County's efforts to update its critical areas mapping at that time and used recent agricultural inventory information from the State (2016) and BCD. Goal and benchmark achievement and updating intersect analysis would be subjects for future reports, particularly the 5-year report due January 2021. Agriculture Conditions and Viability. There has been a net gain in irrigated and dryland agriculture over land removed due to development.

Biennial Report Topic	Summary and Location in Biennial Report
4. The maximization of the use of voluntary incentive programs to encourage good riparian and ecosystem stewardship as an alternative to historic approaches used to protect critical areas;	See Section 2, Critical Areas Conditions and Stewardship and Section 3, Conservation Practices. BCD has engaged with willing landowners to implement voluntary conservation practices or critical area enhancement.
5. The leveraging of existing resources by relying upon existing work and plans in counties and local watersheds, as well as existing state and federal programs to the maximum extent practicable to achieve program goals;	See Section 2, Critical Areas Conditions and Stewardship. Several existing programs have been leveraged together with VSP Work Plan implementation to reach growers and advance VSP implementation.
6. Ongoing efforts to encourage and foster a spirit of cooperation and partnership among county, tribal, environmental, and agricultural interests to better assure the program success;	See Section 4, Outreach Goals and Status. Work Group members have met periodically. BCD has started implementation towards the Work Plan outreach benchmark.
7. Ongoing efforts to improve compliance with other laws designed to protect water quality and fish habitat; and	See Section 2, Critical Areas Conditions and Stewardship. Several collaborative efforts with other agencies are designed to improve both surface water and groundwater quality. Some cost-share projects have involved fish screens on behalf of agricultural producers. See Section 3, Conservation Practices.

Biennial Report Topic	Summary and Location in Biennial Report
8. A description of efforts showing how relying upon voluntary stewardship practices as the primary method of protecting critical areas and does not require the cessation of agricultural activities.	The net gain in irrigated and dryland agriculture illustrates a stable agricultural land base. Conservation practices have been implemented with agriculture. See Section 0, This report identifies progress and activities in relation to the eight biennial report topics under the following headings: 9. Agricultural Conditions and Viability 10. Critical Areas Conditions and Stewardship 11. Conservation Practices 12. Outreach Goals and Status This biennial report does reference elements of the Work Plan for context. Consistent with the State Conservation Commission's VSP Policy Advisory #05-18 this biennial report is informational in nature. The activities and projects in this report illustrate the progress of BCD, the Work Group, the agriculture community, and other entities to promote agricultural viability, protect and enhance critical areas, support voluntary conservation practices, and attract grower participation. This biennial report is not a detailed accounting of achievements of goals and benchmarks, nor does it present a new intersect analysis of critical areas and agriculture. The Work Plan was approved recently in 2018 and the intersect mapping was coordinated with the County's efforts to update its critical areas mapping at that time and used recent agricultural inventory information from the State (2016) and BCD. Goal and benchmark achievement and updating intersect analysis would be subjects for future reports, particularly the 5-year report due January 2021. Agriculture Conditions and Viability and Section 3, Conservation Practices.

This report identifies progress and activities in relation to the eight biennial report topics under the following headings:

13. Agricultural Conditions and Viability

14. Critical Areas Conditions and Stewardship
15. Conservation Practices
16. Outreach Goals and Status

This biennial report does reference elements of the Work Plan for context.

Consistent with the State Conservation Commission's VSP Policy Advisory #05-18 this biennial report is informational in nature. The activities and projects in this report illustrate the progress of BCD, the Work Group, the agriculture community, and other entities to promote agricultural viability, protect and enhance critical areas, support voluntary conservation practices, and attract grower participation.

This biennial report is not a detailed accounting of achievements of goals and benchmarks, nor does it present a new intersect analysis of critical areas and agriculture. The Work Plan was approved recently in 2018 and the intersect mapping was coordinated with the County's efforts to update its critical areas mapping at that time and used recent agricultural inventory information from the State (2016) and BCD. Goal and benchmark achievement and updating intersect analysis would be subjects for future reports, particularly the 5-year report due January 2021.

1. AGRICULTURE CONDITIONS AND VIABILITY

Maintaining and improving agricultural viability under VSP is a goal in sections 7.1 and 7.3 of the Work Plan. For the purpose of this biennial report, the State of Washington Department of Agriculture (WSDA) data is used as a proxy to look at agricultural viability in Benton County compared to the base year of 2011, and to understand broad trends within the agricultural land base. A more detailed intersection and analysis of agricultural lands will be performed as a part of the five-year monitoring report, due in 2021.

Agricultural Land Base – Crop Group Trends

Overall, the agricultural land base for dryland and irrigated agriculture, as tracked by WSDA, is increasing in Benton County. Excluding agricultural lands classified by the WSDA as developed, there has been a 3.4% increase in the agricultural land base in Benton County between 2011 and 2018. Exhibit 2 shows the breakdown in agricultural lands by crop group during this time period.

Exhibit 2. Benton County Agriculture by Crop Group, WSDA, 2011-2018

Crop Group	2011	2016	2017	2018	2011 – 2018 Change (Ac)	2011 - 2018 Percent Change
Berry	2,731	3,369	3,369	3,387	656	24.0%
Cereal Grain	193,483	202,111	202,111	221,043	27,561	14.2%
Commercial Tree	2,743	217	217	217	-2,526	-92.1%
Developed				3,452	3,452	-
Green Manure	51	152	152	159	108	211.3%
Hay/Silage	17,642	10,838	10,768	9,846	-7,795	-44.2%
Herb	6,860	8,430	8,574	9,933	3,073	44.8%
Melon	45	16	16	16	-28	-63.4%
Nursery	320	92	92	74	-246	-77.0%
Oilseed	33				-33	-100.0%
Orchard	18,081	17,918	17,998	17,992	-89	-0.5%
Other*	118,835	122,157	122,073	89,106	-29,729	-25.0%
Pasture**				12,762	12,762	-
Seed	9,142	7,270	7,270	6,643	-2,499	-27.3%
Turfgrass	660	691	691	691	31	4.7%
Vegetable	66,249	75,890	75,907	76,377	10,128	15.3%
Vineyard	23,772	27,423	27,917	26,588	2,815	11.8%
TOTAL:	**460,646**	**476,575**	**477,156**	**478,287**	**17,641**	**3.8%**
Developed (part of Other):	1,364	3,144	3,146	3,452	2,088	153.0%
TOTAL EXCLUDING DEVELOPED:	**459,282**	**473,431**	**474,010**	**474,835**	**15,553**	**3.4%**

Note: *Other includes Alkali Bee Bed, CRP/Conservation, Developed, Fallow, Fallow (idle), Pasture, Research Station, Unknown, and Wildlife Feed.

**In 2011 through 2017, Pasture was included in "Other". In 2018 it is called out separately. It is based on WSDA estimates and spatial mapping.

Source: WSDA, 2011-2018; BERK, 2019.

The largest increases in agricultural crop groups between 2011 and 2018 by acreage are:

- Cereal Grains – 27,560-acre increase
- Vegetables – 10,128-acre increase
- Vineyards – 2,816-acre increase

Conversely, the largest decreases in agricultural crop groups between 2011 and 2018 by acreage are:

- Commercial Tree – 2,526-acre decrease
- Hay/Silage – 7,796-acre decrease
- Seed – 2,499-acre decrease

The Other category has seen a very large decrease, which until 2018, included the Developed and Pasture categories. While it shows a decrease, it more accurately reflects higher specificity in the data rather than a loss in that category. For a full breakdown of change in crop type as tracked by WSDA, visit Appendix A: Detailed Crop Type Breakdown.

Exhibit 3 below shows the change in developed agricultural land between 2011 and 2018, compared to the total change in agricultural land.

Exhibit 3. Change in Developed Agricultural Land (acres), 2011-2018

AG LAND TYPE	2011	2016	2017	2018	2011-2018 CHANGE (AC)	2011 - 2018 PERCENT CHANGE
Developed (part of Other):	1,364	3,144	3,146	3,452	2,088	153.0%
Total Excluding Developed:	459,282	473,431	474,010	474,835	15,553	3.4%
TOTAL:	460,646	476,575	477,156	478,287	17,641	3.8%

Source: WSDA, 2011-2018; BERK, 2019.

Overall, new agricultural land is expanding at a faster rate than existing agriculture has converted to developed land. Between 2011 and 2018, there was a 2,088-acre transition of agricultural land to developed land, whereas there was a gain of 15,553 acres of agricultural land, excluding those classified as developed. This indicates a growing agricultural land base overall as the new land far exceeds land becoming developed. The developed category is used to track any land converted from agriculture to a non-agriculture development over time.

WSDA information provides more detailed crop type information for dryland and irrigated agriculture; it does not address rangeland. Rangeland makes up about another 92,000 acres in the county, primarily in the Lower Yakima Basin as well as Rock Glade Basin, per Work Plan mapping. The status of rangeland is not fully known, though BCD has initiated imagery analysis of shrub-steppe areas and that may allow consideration of rangeland status and its intersect with that habitat and others. About one third of the rangeland in the Lower Yakima Basin was found to intersect shrub-steppe.

It should also be noted that over time, WSDA has refined its methods for mapping agricultural lands, and the changes above in Exhibit 2 and Exhibit 3 likely represent a mix of actual change, along with an increase in accuracy of WSDA mapping efforts over time. It is also important to note that the WSDA data accounts for agricultural changes throughout all of Benton County, not just the unincorporated areas of the county where the VSP applies. It is important to consider this when reviewing overall trends in agriculture based on the WSDA data.

2. CRITICAL AREAS CONDITIONS AND STEWARDSHIP

BCD has worked with other agencies and agricultural producers to address ecosystem stewardship and riparian conditions. Below are descriptions of projects the BCD is currently working on which contribute towards the protection and enhancement of critical areas within the area where agricultural activities are conducted and ongoing agricultural land stewardship.

Shrub-Steppe and Other Wildlife Habitat Conservation Areas

During the January 2019 Work Group meeting, the group discussed the WDFW Blackrock project and its implications for VSP. WDFW is applying for a grant to install green strips for fire protection in the Blackrock area of the county, which has little to no fire protection. Fire protection in this area was addressed in the VSP plan as an agriculture viability goal.

As noted in the Work Plan Section 7.1 (page 61), given the extent of shrub-steppe habitat in areas of the County not already developed or in irrigated or dryland agriculture, there is an expectation that irrigated agriculture will likely expand into shrub-steppe habitat. The Work Plan identifies habitat corridors as areas of focus for shrub-steppe conservation strategies, and that if there are losses, they would be balanced with measures to protect high quality shrub steppe and enhance degraded shrub-steppe communities.

In December 2018 and January 2019, BCD completed an updated analysis on the location and extent of shrub-steppe. Critical area mapping for Fish and Wildlife habitat from WDFW was used to define areas of shrub-steppe. The 2018 WSDA crop survey map data was used to determine the agricultural acreage within shrub-steppe areas. Crop fields that were initially surveyed prior to 7/31/2011 were removed from the dataset. Crop types that are not included in the definition of agricultural activities such as golf courses, CRP/conservation, and "developed" were removed from the dataset. Aerial imagery of Benton County in 2011 and 2017 was used to spot check the remaining data, and any fields that were present in the 2011 imagery were removed from the dataset. The remaining agricultural acreage within the shrub-steppe area was calculated and compared to the total acreage of shrub-steppe. The results showed that approximately 0.81% of shrub-steppe habitat has been converted to agriculture since July 2011.

Areas for additional study include continuing to monitor shrub-steppe loss as new aerial imagery and crop surveys become available and refining the intersection data to include high or very high habitat concentration areas, linkage centrality areas, and pinch points.

It is anticipated that the Work Group will discuss imagery analysis results and potential conservation activities in the 2019-2021 biennium.

Fish Habitat

As noted in Section 7.1 of the Work Plan (page 61), goals and measurable benchmarks in the Work Plan for streams focus on measures to protect and enhance water quality, as well as riparian vegetation.

Thermal Profiling Work

BCD is leading a multi-agency project to study thermal refuge potential on the lower Yakima River. This project builds on previous work that identified several cooler water locations on the lower river that may provide refuge for migrating salmon during times when ambient river temperatures are otherwise too warm. As part of this study BCD is conducting thermal profiling of 88 river miles of the lower Yakima River, monitoring micro-scale temperatures at selected priority locations, and investigating the geomorphology and its relationship to groundwater and surface water interactions.

As thermal refuge locations are discovered, BCD will work with private landowners to perform restoration on their property in order to protect the thermal refuge. One thermal refuge protection and restoration project has been specifically funded under VSP cost sharing, on the Mast Farm along the Yakima River in which BCD is helping with the protection of cool water refuge.

The greater thermal profiling work is funded under the Yakima Basin Integrated Plan through the WA Department of Ecology and is designed to support basin wide salmon recovery efforts.

Fish Screens

Fish screens are being used on irrigator intakes on the Yakima River, with three projects currently underway and to be finished in the next biennium.

Surface Water Quality: Water Star-grass and Nutrient Dynamics

Water quality is addressed primarily through the Regulatory Backstop per Section 4.2 of the Work Plan. Additionally, Exhibit 7-3 of the Work Plan lists agricultural viability aims that also address water quality, including and activities including promoting voluntary conservation practices to control water stargrass and other invasive plant abundance and prevent new populations.

Excessive aquatic plant growth has degraded water quality in the lower Yakima River negatively impacting river flow, dissolved oxygen and water temperatures. The abundance of plant growth also negatively impacts landowners, recreation activities, and native stocks of fish. In conjunction with the US Geological Survey, BCD is conducting a comprehensive study to understand the relationships between water quality, nutrients, and aquatic plant abundance in the lower River from Prosser to West Richland, WA. This work will provide information to help answer critical questions about lower river water quality and aquatic plant growth, aid in the assessment of future management policies and decisions and prioritize potential actions to restore water quality within the lower Yakima River. The project is funded under a Centennial Clean Water Grant as part of Department of Ecology's combined Water Quality funding program.

There are two continuous monitors in the river, which are supplemented by monthly nutrient checks, in order to understand the nutrient loading in the lower Yakima River. It is early in the problem identification phase, and while there is a likelihood that agriculture runoff contributes to this nutrient loading, the degree to which that plays a role in the water star-grass growth will be determined throughout the course of this work. Additionally, as many agricultural produces draw irrigation water from the lower Yakima River, growth of star-grass often clogs their intakes, and they reach out to BCD asking for a solution.

Benton County Groundwater Nitrate Community Action Plan

The Work Plan includes goal and benchmarks regarding protecting groundwater quality in areas of agricultural intersect, with a performance metric of monitoring results as collected per the County Groundwater Plan as resources allow.

Concerns over the occurrence of nitrate in County groundwater led to an application for grant funding from the Department of Ecology (Ecology).

The grant was used to:

1. Prepare a baseline evaluation of groundwater nitrate conditions in the County.
2. Convene a stakeholder group, henceforth referred to as the Stakeholder Committee, to review these findings and discuss actions that might be implemented to reduce groundwater nitrate concentrations in areas of concern.
3. Prepare an Action Plan to guide local agencies and stakeholder efforts in reducing groundwater nitrate in the future

The grant included nitrate sampling of over 200 wells throughout the county sampled over multiple seasons, many of which are on agricultural lands (some drinking water wells, some for agriculture only). The data is useful in identifying areas of high nitrates in groundwater.

Furthermore, the action plan presents the current understanding of the nature of the groundwater nitrate problem and sources that may contribute nitrate to groundwater in Benton County, recommended management strategies, and a process to implement the strategies and monitor their progress.[2]

3. CONSERVATION PRACTICES

Also pertaining to section 7.1 of the Work Plan, this section discusses implementation efforts by BCD and the agriculture community in Benton County. As the Work Plan states (page 63), implementation is typically measured by the area directly affected by conservation practices. However, implementation benchmarks may also to relate to more programmatic actions led by the Work Group or other members of the agricultural community. For example, coordinated fire management among agriculture and fire-fighting and resource management agencies is a high-priority programmatic action to reduce the frequency of fire affecting shrub-steppe habitat and rangelands.

Agricultural producers in Benton County continue to innovate their farm practices and increase their efficiencies while stewarding the environment, in accordance with the above goals and definitions laid out in the Work Plan. Common practices include but are not limited to:

- Cover crops to provide vegetative cover that improves soil quality and reduces erosion
- Fencing for browsing animal management
- Fish screens at irrigation diversions
- Integrated Pest Management
- Irrigation Conversion and Irrigation Water Management such as: trellis and irrigation systems, pond and irrigation canal lining, center pivot low energy precise application (LEPA), variable frequency drive, irrigation scheduler/precision irrigation
- Pesticide disposal / washing containers in vegetated areas
- Poles / boxes for birds of prey ("raptor poles")
- Pollinator habitat (e.g. end of rows, outside pivot circles)
- Upland wildlife habitat planting (e.g. Mercer Canyon)

BCD shows the application of conservation practices through its programs, particularly regarding irrigation conversions and water management as well as fish screens. Exhibit 4 combines the projects reported in the Work Plan that the BCD completed between 2011 and 2015 with projects from 2016 to the present, including projects currently underway.

[2] https://www.co.benton.wa.us/files/documents/GroundwaterNitrateCommunityActionPlan217101233112818AM.pdf

Exhibit 4. Benton Conservation District - Conservation Practices 2011-June 2019

PRACTICE	NUMBER OF PROJECTS	AMOUNT	VALUE	CRITICAL RESOURCE AREAS POTENTIALLY IMPACTED
CREP	3	86.2	Acres	FWHCA, Wetlands, Freq. Flooded
Fencing	5	23,236	Feet	FWHCA, Wetlands, Freq. Flooded
Field Borders*	1	160	Acres	*
Fish Screen	14	14	No.	FWHCA, Freq. Flooded
Integrated Pest Management	2	7,945	Acres	FWHCA, CARA, Wetlands
Irrigation Conversion	19	350	Acres	CARA, FWHCA
Irrigation Water Management	9	26,466	Acres	CARA, FWHCA
Livestock Nutrient Management	1	1	No.	CARA
Pond Lining - Irrigation	3	3	No.	CARA, FWHCA
Range/Pasture Management	1	330	Acres	CARA, Geologic Hazards., Freq. Flooded
Residue Management	3	302.5	Acres	*
Riparian Restoration	2	650	Feet	FWHCA, Wetlands, Freq. Flooded
Soil Management	2	357.3	Acres	Geologic Hazards., Freq. Flooded
Variable Frequency Drive	1	3,944	No.	CARA, FWHCA
Windbreak	1	270	Feet	FWHCA

Abbreviations: FWHCA = Fish and Wildlife Habitat Conservation Areas; CARA = Critical Aquifer Recharge Area; Freq. = Frequently

Note: * Field Borders May Impact – FWHCA's and Residue Management May Impact – FWHCA's and Geologically Hazardous Areas. **In regard to potentially impacted critical areas**, the precise locations of these projects in relation to critical area interests are unknown and would require further study. Therefore, the data is presented at the county level, and there is no certainty that these projects are impacting critical areas.

Source: Benton County VSP Work Plan, 2017; BCD, 2019; BERK, 2019.

This represents only a portion of projects that were completed, since many producers implement conservation practices in coordination with other conservation programs, as well independently, or coordinated with the Voluntary Regional Agreement between Columbia-Snake River Irrigators Association and Washington State Department of Ecology (RCW 90.90.030).

BCD shares the cost of these projects and that percent is determined by the given project. Including all funding sources, not solely VSP, BCD has paid out nearly $170,000 in cost sharing to agricultural land owners implementing the conservation practices listed above from 2016 to present.

The above includes two VSP cost-share projects:

- Mast Farms project – phase 1 of structure water control (Lower Yakima basin)
  - 92% cost sharing (~$50,000 paid by BCD)
- Knutson – phase 1 of Upland Wildlife Habitat/Conservation Cover planting (Rock/Glade basin)
  - 5 ac. Of Herbaceous Weed Treatment at 75% cost sharing (~$5,000 paid by BCD)

As a result of the January 24, 2019 meeting, the Work Group decided that they would rather see funding spent on management practices such as Nutrient Management and Irrigation Water Management than irrigation conversions which can receive funding from other programs.

Irrigation Improvements and Water Conservation

BCD is supporting the transition to more effective irrigation techniques through its cost sharing, as described above. Moreover, producers are implementing water conserving practices.

There have been significant changes to the irrigation types utilized on agricultural lands in Benton County since 2011. Between 2011 and 2018, there has been an 8,276 acre increase in drip irrigation, a 6,961 acre increase in center pivot irrigation, and a 3,356 acre increase in micro-sprinkler irrigation.

These irrigation types generally represent more efficient irrigation options and illustrate the shift to more conservation-focused irrigation techniques.

4. OUTREACH GOALS AND STATUS

In relation to the requirements for the upcoming 5-year monitoring report, Benton County VSP Work Group is on track to fulfill outreach and engagement benchmarks.

Work Plan Participation Goals & Benchmarks

As described in section 7.2 of the Work Plan, the Work Group aims to promote education, volunteerism, and stewardship of agricultural land and critical areas via the following methods:

A. Launch VSP outreach program and promote education regarding VSP and conservation practices. - ***ongoing***

B. Sufficient participation by commercial and non-commercial agricultural operators that achieves the protection of critical area functions and values across WRIA basins. - ***ongoing***

1. Contact 20% or more of producers annually.
2. Maintain average annual support to 30 producers. Increase average annual support if funding is sufficient.
3. Annually review priorities for implementation and outreach strategies with the Work Group. Determine priorities based on area of intersect and location, producer interest and need, available monitoring results, and available resources, or other factors developed by the Work Group and Technical Service providers.

C. Indirect participation by commercial and non-commercial agricultural operators in VSP conservation practices is maintained or increased over 10 years on agricultural land. - ***ongoing***

The Work Plan identifies a number of ways to measure participation depending on the phases and types of outreach or engagement:

1. Indicators of outreach and education include

- Number of targeted outreach events
- Number/percentage of landowners contacted
- Number of event attendees
- Number of VSP participation signs and marketing materials distributed
- Education opportunities provided
- Survey of potential VSP participants regarding awareness and knowledge of VSP

2. Indicators of direct participation include:

- Technical assistance provided (as tracked through meetings, calls, applications, and contracts with technical assistance providers)
- Number of farms, acres, conservation practices, etc. implemented
- Number of applications submitted for conservation practice assistance (technical or financial)
- Checklists completed

3. Indirect participation in common stewardship practices may be tracked and reported using one or more methods:

- Mapping and imagery interpretation with on-the-ground verification, as needed, of practices in place; and
- Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners, or
- Phone, mail, or online surveys, or
- Census of agriculture or other broadly gathered and published information (only available periodically).

Outreach Status

The Benton VSP Work Group has continued to work towards the goals and measures as laid out above. The Work Group meets approximately every 6-7 months, bringing together the regional VSP partners to continue the advancement of the Benton VSP Work Plan. Below are the past meeting dates of the Work Group during the 2017-2019 Biennium and after the April 2018 approval of the Work Plan:

- 5/29/18
- 1/24/19
- 6/20/19

Attendees include BCD staff, state agency staff, representatives from the agriculture community, tribal representatives, and environmental interest group representatives.

May 2018 Work Group Direction on Cost Shares: The Work Group recommended prioritizing projects that address more than one critical area. The group decided to gauge interest and participation for projects before determining specific allocation amounts and guidelines. Post cards were mailed in June after this meeting to help find interested participants. (Results of cost sharing are ongoing and discussed above in the Conservation Practices section)

The Work Group has continued outreach regarding VSP and its impact on the region. Summer 2018 outreach activities included the following:

- Approximately 3,545 postcards were sent to agricultural land owners with lands intersecting critical areas, which corresponds to ~70% of agricultural land owners with lands intersecting critical areas. This resulted in 38 responses/inquiries.
- Eleven field visits have been completed, resulting in two stewardship checklists being completed (just by way of field visits, other checklists have been completed via paper copies and the online survey), one individual stewardship plan (ISP) complete, and two ISPs in progress.

- Staff attended two VSP implementation workshops

BCD staff coordinated outreach at attended agriculture interest groups in advocacy of the VSP Work Plan. Below is a list of the seven events in which they participated since April of 2018:

- 4/10/18 – Cattleman's Association Meeting: staff presented about VSP program
- 6/6/18 – BC Wheat Grower's Meeting: staff presented about VSP program
- 1/9/19 – Tri Cities Ag. Expo - Staff gave 1-hour presentation
- 1/15/19 – Benton Co. Farm Bureau Meeting: staff presented about VSP program
- 1/18/19 – Blackrock grower meeting –staff met with WDFW staff member and growers in Blackrock area to discuss WDFW's grant application for fire protection in the area (more information on the project is in Section 2)
- 3/16/19 – Horse & Small Farms Workshop – staff presented about VSP program
- 4/18/19 – Air Quality Dryland Workshop: staff presented about VSP program
- 7/13/19 – Benton REA annual picnic – booth with information on the VSP program

Stewardship Checklists

Nine stewardship checklists have been completed, describing a wide array of practices that agricultural landowners have undertaken to improve areas on their properties. The table below represents the full spectrum of data received via the checklists. For fields where there is an 'X', it indicates the owner has completed that practice but did not include specific measures. The full checklist can be viewed in Appendix B: Benton County VSP .

Exhibit 5. Stewardship Checklist Responses Received – Part 1

Checklist Id	Crop Type	Mulch Till	Reduced Till	No Till/Direct Seed	Pest Management	Nutrient Management	Filter Strips (No.)	Sprinkler System Upgrades	IWM	Pumping Plants	Prescribed Grazing	Range Planting	Stock Watering Facilities/Wells	Fencing (Ft)
1	Irrigated										13		4	567
2	Dryland													
3	Irrigated			X	X	X		X			X		4	3,952
4		X			X						X			X
5	Dryland		400	2,300	2,700	2,700	150							
6	ALL		X		X	X		X	X		X	X	X	X
7	Irrigated							31			32			2,944
8	Irrigated	X	X		X	X		X	X	X				
9	Irrigated	X		X	46	46		28			37			X
		0	400	2,300	2,746	2,746	150	59	0	0	82	0	8	7,463

Source: BCD, 2019.

Exhibit 6. Stewardship Checklists Responses Received - Part 2

Checklist Id	Crop Type	Conservation Crop Rotation	Cover Crop	Mulch	Critical Area Planting	Conservation Cover	Herbaceous Weed Control	Tree/Shrub Establishment	CRP	Safe Ferruginous Hawk
1	Irrigated									
2	Dryland						0.1	0.1	52	480
3	Irrigated	X					X	X		
4				X			X			
5	Dryland		X							
6	ALL	X	X		X	X	X	X		
7	Irrigated									
8	Irrigated		X			X	X	X		
9	Irrigated		X			5		5		
		0	0	0	0	5	0.1	5.1	52	480

Source: BCD, 2019.

In addition to paper versions available, the checklist is available online at: https://www.bentoncd.org/firewise

Future Engagement Goals

Future engagement and outreach strategies will be the core topic for the upcoming Work Group meetings early in the 2019-2021 biennium.

Steps for 5-Year Report

In addition to expanding on the reporting provided in this Biennial Report, BCD will:

- Collect the latest data on critical areas and agricultural lands and re-run the intersect calculations to understand how the intersection of critical areas and agriculture is changing in Benton County. Additionally, imagery analysis methods and results would be reported.
- Review current conservation practice and other voluntary initiative participation. The results of direct and indirect VSP participation would be documented.

Monitoring results would be vetted by the Work Group. BCD may engage experts to help identify the area of intersect and changes compared to benchmarks set forth in the Work Plan. Monitoring results would be analyzed at the watershed level.

Appendix A: Detailed Crop Type Breakdown

Exhibit A-1. Benton County Agricultural Land by Crop Type, WSDA, 2011-2018

CROP TYPE	2011	2016	2017	2018	2011 - 2018 PERCENT CHANGE
Alfalfa Hay	12,589	7,709	7,653	6,205	-50.7%
Alfalfa/Grass Hay	1,702	572	572	928	-45.4%
Apple	11,896	12,067	12,091	12,258	3.0%
Apricot	181	78	78	42	-77.0%
Asparagus	84	12	12	12	-85.9%
Barley	39	6	6	72	85.3%
Bean Seed	611	73	73	126	-79.4%
Bean, Dry	124	125	125	421	239.0%
Bean, Green	136	128	128		-
Blueberry	2,180	3,210	3,210	3,381	55.1%
Bluegrass Seed	6,212	6,591	6,591	6,266	0.9%
Buckwheat		131	131	131	-
Caneberry	511	159	159	7	-98.7%
Canola	33				-
Carrot	1,699	4,659	4,659	4,211	147.8%
Carrot Seed	7				-
Cherry	5,293	5,269	5,325	5,274	-0.3%
Clover Hay				124	-
Clover/Grass Hay		12	12		-
Corn Seed	71				-
Corn, Field	19,239	21,659	21,697	22,187	15.3%
Corn, Sweet	19,117	15,952	15,970	16,408	-14.2%
CRP/Conservation	104,536	99,329	99,329	79,630	-23.8%
Currant	41				-
Developed	1,364	3,144	3,146	3,452	153.0%
Driving Range	12	34	34	34	173.9%
Fallow	6,361	6,122	3,156	2,042	-67.9%
Fallow, Idle			2,737	5,180	-
Fallow, Tilled			188	679	-
Garlic	1				-
Golf Course	647	657	657	657	1.4%
Grape, Juice	5,867	5,138	5,047	4,093	-30.2%
Grape, Table		4	4		-
Grape, Unknown		3	3	29	-
Grape, Wine	17,905	22,278	22,864	22,466	25.5%
Grass Hay	790	1,536	1,522	1,730	119.0%
Green Manure	51			7	-85.4%
Hops	4,503	4,720	4,851	5,956	32.3%

CROP TYPE	2011	2016	2017	2018	2011 - 2018 PERCENT CHANGE
Kale		5	5		-
Marijuana		18	32	46	-
Market Crops	14	140	140	69	402.4%
Medicinal Herb		3	3	1	-
Mint	2,357	3,689	3,689	3,930	66.7%
Nectarine/Peach	296	126	126	108	-63.6%
Nursery, Greenhouse	8	2	2	2	-79.9%
Nursery, Orchard/Vineyard	292	56	56	41	-86.1%
Nursery, Ornamental	20	34	34	32	55.8%
Oat	112				-
Oat Hay		98	98		-
Onion	10,944	13,203	13,203	13,714	25.3%
Pasture	5,964	11,994	11,948	12,762	114.0%
Pea Seed	1,461	605	605	252	-82.8%
Pea, Green	3,117	7,266	7,266	6,864	120.2%
Pear	352	308	308	250	-28.8%
Plum	39	44	44	34	-12.8%
Poplar	2,743	215	215	215	-92.2%
Potato	28,557	31,934	31,934	32,607	14.2%
Pumpkin	519	185	185	252	-51.5%
Research Station	488	511	511	511	4.8%
Rye	3	2	2		-
Ryegrass Seed	781				-
Silviculture		3	3	3	-
Sorghum		1	1		-
Strawberry		1	1		-
Sudangrass	388	43	43	87	-77.5%
Sugar Beet	1,937	2,281	2,281	1,821	-6.0%
Timothy	2,174	715	715	644	-70.4%
Triticale	13	83	45		-
Triticale Hay		153	153	129	-
Unknown	80	932	932	932	1067.2%
Walnut	24	27	27	25	6.8%
Watermelon	45	16	16	16	-63.4%
Wheat	100,110	100,256	100,256	106,780	6.7%
Wheat Fallow	73,967	79,975	79,975	91,874	24.2%
Wildlife Feed	42	126	126	132	217.7%
Yellow Mustard		152	152	152	-
TOTAL:	**460,646**	**476,575**	**477,156**	**478,287**	**3.8%**

Source: WSDA, 2011-2018; BERK, 2019.

Appendix B: Benton County VSP Outreach Materials

Exhibit 7. Stewardship Checklist

Working together, farmers can use volunteer efforts to avoid additional regulatory controls. The Voluntary Stewardship Program (VSP) is a new, non-regulatory, and incentive-based approach that supports individual farm operations and viability while protecting critical areas and maintaining agriculture viability in Benton County through **voluntary stewardship strategies and practices**.

Failure to meet protection and associated participation goals in the County will trigger the **traditional regulatory approach** to critical area protection under the County's Critical Areas Ordinance process.

How can the VSP support operations on your farm?

VSP allows farmers to have more flexibility than Benton County's traditional critical area regulations by promoting tailored stewardship strategies and practices to individual farms to protect critical areas and maintain and enhance agricultural viability.

This VSP checklist is intended to help each farmer contribute to the goals and benchmarks of the Benton County VSP Work Plan. Many farmers in the County are already implementing stewardship strategies and conservation practices that promote farm viability while also providing protections to critical area functions. **Working together, farmers can use volunteer efforts to avoid additional regulatory controls.**

Balanced Approach of Critical Area Protection and Agricultural Viability

VSP Checklist

The VSP Checklist has the following main objectives:

Identify and document existing stewardship strategies or conservation practices you have implemented since 2011 (effective date of VSP), either through existing publicly funded programs or voluntarily implemented through producer-funded practices.

Identify opportunities to:

- Maintain or improve existing stewardship strategies and conservation practices.
- Implement additional stewardship strategies and conservation practices on your land and connect you with technical service providers for implementing these practices.

Encourage high producer participation, through implementation of voluntary stewardship strategies and conservation practices to help ensure the success of VSP. **Failure of the County to meet protection and associated participation goals will trigger the traditional regulatory approach to critical area protection under the County's Critical Areas Ordinance process.**

What are critical areas?

Critical areas include:

- Wetlands
- Fish and Wildlife Habitat Conservation Areas
- Critical Aquifer Recharge Areas
- Geologically Hazardous Areas
- Frequently Flooded Areas

Conservation Practices on Your Farm

A conservation practice is broadly defined as any practice, that when implemented, further protects critical areas directly or indirectly, and maintains or improves agricultural viability whether or not it meets a Natural Resources Conservation Service (NRCS) conservation practice or other standard.

This checklist can assist in documenting all stewardship strategies and conservation practices currently being implemented by producers in the County and identify additional conservation practices that might apply to your property. Because stewardship strategies and conservation practices may fall under multiple categories, please include each implemented practice **only once**.

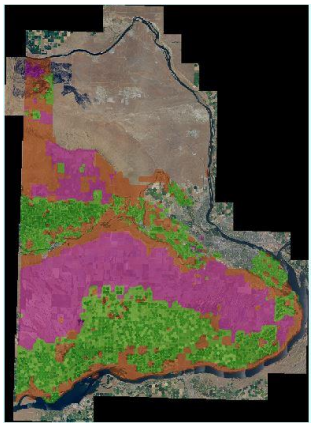
Disclaimer:
Stewardship strategies and voluntary conservation plans documented through a local government agency, such as the Conservation Districts, are generally exempt from disclosure under the state Public Records Act. Note that cost-shared practices are not exempt. The VSP Work Group requires some level of substantive information to be able to monitor ongoing program effectiveness in meeting VSP requirements and goals and benchmarks, and to support the Work Group's finding that aggregate baseline critical area conditions are being protected.

Information collected by producers using this checklist will be used to quantify, at the County-level, stewardship measures that have been implemented, as well as associated critical area protections and enhancements, and agricultural viability benefits.

Name:		Phone number and/or email:	
Site Address:			

General Location (voluntary information):

If you are inclined to share, what area is your farm located within?

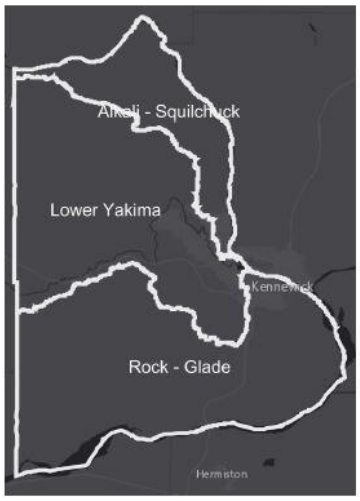


Ag. Land (left)

- ☐ **Dryland**
- ☐ **Irrigated**
- ☐ **Rangeland**

Watershed (right)

- ☐ **Alkali-Squilchuck**
- ☐ **Lower Yakima**
- ☐ **Rock-Glade**



Land Management and Agricultural Viability:

What types of land management or agricultural viability concerns do you have on your property?	
☐ Soil composition (organic matter)	☐ Pollinator/beneficial organism management
☐ Soil loss (erosion)	☐ Yield/fertility
☐ Water quantity/quality	☐ Reduce inputs (e.g., pesticides or fertilizers)
☐ Moisture management	☐ Other(s) please list: _____
☐ Weed management	

Erosion

Residue- and till-management strategies are applied by producers in the County to reduce erosion caused by tillage and manage soil moisture content.

Sprinkler Irrigation

The conversion from rill irrigation to sprinkler irrigation also helps to reduce irrigation-induced erosion for irrigated agricultural purposes.

What conservation practices are being implemented on your farm?

Stewardship Strategies and Conservation Practice Examples	I do this	I'm interested in this	Does not apply	Not interested	Average units/year (acres/feet/percentage)
Residue and Tillage Management					
Mulch Till	○	○	○	○	
Reduced Till	○	○	○	○	
No Till/Direct Seed	○	○	○	○	
Other(s): _____	○	○	○	○	
Chemical and Nutrient Management					
Pest Management	○	○	○	○	
Nutrient Management	○	○	○	○	
Other(s): _____	○	○	○	○	
Water and Filtration Management					
Filter Strips	○	○	○	○	
Sprinkler Systems Upgrades	○	○	○	○	
Irrigation Water Management	○	○	○	○	
Pumping Plants					
Other(s): _____	○	○	○	○	
Range/Pasture Management					
Prescribed Grazing	○	○	○	○	
Range Planting	○	○	○	○	
Stock Watering Facilities/Wells	○	○	○	○	
Fencing	○	○	○	○	
Other(s): _____	○	○	○	○	
Soil Management					
Conservation Crop Rotation	○	○	○	○	
Cover Crop	○	○	○	○	
Mulch	○	○	○	○	
Critical Area Planting	○	○	○	○	
Other(s): _____	○	○	○	○	
Habitat Management					
Conservation Cover	○	○	○	○	
Herbaceous Weed Control	○	○	○	○	
Tree/Shrub Establishment	○	○	○	○	
Other(s): _____	○	○	○	○	

Additional Information and Assistance

Critical areas exist throughout the County. You can direct questions about the presence of critical areas on your property to the Benton County VSP Coordinator by using the contact information below.

Benton County VSP Coordinator Provider:

Benton Conservation District
Melissa Pierce (Resource Conservationist)
Benton Conservation District
10121 W. Clearwater Ave, Suite 101
Kennewick, WA 99336
509-736-6000
Melissa-pierce@conservewa.net
https://www.bentoncd.org/

Other Local Resources:

- Washington Cattlemen's Association: http://www.washingtoncattlemen.org/
- Benton County Farm Bureau: https://wsfb.com/benton-county-farm-bureau/
- Washington Wheat Growers Association: http://www.wawg.org/
- USDA Natural Resources Conservation Service:
    - http://www.usda.gov/wps/portal/usda/usdahome
- Washington State University Extension: http://extension.wsu.edu/

Exhibit 8. Postcard Sent to Producers

BENTON CONSERVATION DISTRICT

VSP

Voluntary Stewardship Program

Benton County has a new program to enhance agriculture while protecting the environment: the Voluntary Stewardship Program

What is the Voluntary Stewardship Program (VSP)?
The VSP is an incentive based, voluntary program for agricultural producers that has taken the place of county critical areas regulations. It seeks to protect and enhance critical areas, while maintaining and enhancing agricultural viability. It gives landowners a chance to stave off unnecessary regulations and to be recognized for conservation practices.

What areas does the VSP protect?
The VSP protects environmentally critical areas on agricultural lands that are located in unincorporated Benton County. Critical areas include:
(1) fish and wildlife habitat conservation areas, **(2)** wetlands,
(3) frequently flooded areas, **(4)** geologically hazardous areas, and
(5) critical aquifer recharge areas used for potable water.

See RCW 36.70A and WAC 365-190

BENTON CONSERVATION DISTRICT

Why are we contacting you?
Through an evaluation of critical area locations and agriculture in Benton County, you likely have property with critical areas and could benefit from this voluntary program.

Benton Conservation District and VSP
We look forward to working with you to provide technical assistance and financial incentives to protect and enhance critical areas and maintain agricultural viability in Benton County.

If you have questions or would like more information, please contact Melissa Pierce at the Benton Conservation District:

(509) 736-6000 | melissa-pierce@conservewa.net

BCD weblink: https://www.bentoncd.org