Please complete and submit to your project manager.

Reporting Period: 
☐ January 1 through June 30 (Due August 1)  ☒ July 1 through December 31 (Due February 1)

All information is required by the U.S. Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA). Do not leave blanks (unless otherwise noted). This report form can be typed using your computer. Use the "tab" key to move through the fields of this form. Enter responses using text and check boxes as indicated. Keep a copy for your records.

I. General Report Information

1. Project title: Heron Lake Third Crop Phosphorus Reduction Effort
2. Project sponsor (Grantee): Heron Lake Watershed District
3. Contact name: Jan Voit, District Administrator
4. E-mail address: jan.voit@mysmbs.com
5. Funding: ☒ 319 ☐ CWP ☐ Clean Water Fund ☐ Other:
6. Contract number: 69593
7. MPCA Project Manager: Katherine Pekarek-Scott
8. Effective date (mm/dd/yyyy): 7/1/2014 Expiration date (mm/dd/yyyy): 8/31/2017

II. Semi-annual Report Information

1. Project activities completed during last six (6) months according to the program objectives or tasks (please be specific):

   Objective 1. Task A. Project partners met on July 15, 2014. Time was spent reviewing the objectives and tasks in the work plan. Katherine Pekarek-Scott, Minnesota Pollution Control Agency; Jerry Perkins, Jerry and Nancy Ackermann, Andy Nesseth, Extended Ag Services; Amanda Schultz, Catherine Sereg, and Jan Voit, Heron Lake Watershed District (HLWD) were in attendance.

   Objective 1. Task A. The cover crop seed was secured from LaCrosse Seed on August 4, 2014.

   Objective 1. Task A. The cover crop was aerially seeded on the Ackermann property on August 6 and 7, 2014. The seeding was done by Loren Greenhof, Leading Edge Aerial Spraying LLC. Loading and fueling, as well as takeoff and landing were done at the Nauerth air strip. Assisting with the seeding were Brian and Terry Post, Dave Christoffer, Jerry and Nancy Ackermann, Kevin Schmid, Rod Dicks, and John and Phyllis Nauerth. Also in attendance were Chris Bauer and Aaron Crowley, Jackson Soil and Water Conservation District; Stephanie McLain, Nobles Natural Resources Conservation Service; and Jan Voit, HLWD.

   Objective 1. Task A. The Christoffer property was seeded on August 7, 2014. The seeding was done by Loren Greenhof, Leading Edge Aerial Spraying LLC. Loading and fueling, as well as takeoff and landing were done at the Nauerth air strip. Assisting with the seeding were Terry Post, Dave Christoffer, Jerry and Nancy Ackermann, Kevin Schmid, and John and Phyllis Nauerth.

   Objective 1. Task A. The Perkins and Hansberger properties were seeded on August 7, 2014. The seeding was done by Loren Greenhof, Leading Edge Aerial Spraying LLC. Loading and fueling, as well as takeoff and landing were done at the Worthington airport. The Hansbergers and Perkins worked together and loaded the seed bags into the seed tender and assisted with loading the plane.

   Objective 1. Task B. The Quality Assurance Project Plan (QAPP) was revised on August 4, 2014. The QAPP was sent to Katherine Pekarek-Scott and Andy Nesseth for review.

   Objective 1. Task B. Infiltration measurements were taken at the Perkins and Ackermann sites on October 20, 2014.

   Objective 1. Task B. Infiltration measurements were taken at the Hansberger site on October 22, 2014.

   Objective 1. Task B. Infiltration measurements were taken at the Christoffer site on November 3, 2014.
Objective 2. Task C. On September 30, 2014, Jan Voit created a webpage for the Third Crop Phosphorus Reduction Effort on the HLWD website. A summary of the grant effort was posted. The 2014 cover crop seeding document was uploaded.

Objective 2. Task C. The partner meeting summary was uploaded to the webpage on December 22, 2014.

Objective 3. Task A. On July 2, 2014, project partners were contacted regarding a partner meeting. An agenda was created and distributed. The partner meeting was held on July 15, 2014.

Objective 3. Task A. The Quality Assurance Project Plan (QAPP) was revised and sent to MPCA on August 4, 2014. The QAPP was approved by MPCA on August 27, 2014.


Objective 3. Task A. Jan Voit began updating the budget on September 22, 2014. Additional information was added on September 25, December 2, December 18, and December 22, 2014.

Objective 3. Task A. The annual report was submitted on December 22, 2014.

2. List all products (documents, pamphlets, videos, maps, etc.) produced in this reporting period:

   Partner meeting agenda
   Partner meeting summary
   Photographs

3. Challenges faced (optional):

   Forms for reporting continue to be troublesome. It would be wonderful if they could be formatted so a table could be inserted in the document.

4. Summary of monitoring data collected (if applicable):

   Infiltration Test Results

   The Nobles County infiltration test locations have soils with a high water holding capacity and showed higher infiltration rates than Jackson County. In Nobles County, Elk 10, NW ¼ the infiltration rate was 22 inch per hour. We took the test in a L135A soil type with a 52 degrees F soil temperature. We took the test on October 20, 2014. In Nobles County, Elk 32, the infiltration rate was also 17 inches per hour. The soil type was L85A-nicollect clay loam and the soil temperature was 49 degrees F. We took the test on October 22, 2014.

   The Jackson County infiltration test locations have “poorly drained” soils. In Jackson County, West Heron Lake 33, the infiltration rate was 8 inches per hour. The soil type was 813-spicer-lura complex and the temperature was 47 degrees F. We took the test on October 20, 2014. In Jackson County Alba 34 the test results were 5 inches per hour. The soil type was 229-waldorf silty clay and the temperature was 46 degrees F.

   All sites have similar tillage practices, no till beans and strip till corn. Three out of the 4 test site were corn and the other was a bean. We timed each inch of water that was infiltration within the ring's surface water for one hour.

   Soil Sample Results

   Christoffer:

   Six composite soil tests were taken on November 11th, 2014 from 0-6” and sent to MVTL Laboratories to be analyzed for Organic Matter, pH, Buffer pH, Phosphorus, Potassium, and Zinc. Soil texture was determined by examining the NRCS Soil Survey for Jackson County. Organic matter is high averaging 5.8% which is fairly typical for the region and soil types. The soil pH is approximately neutral ranging from 6.2 to 7.3 in the top 6 inches. Again, this is within the ranges expected for the soil types in the field. Soil phosphorus is variable ranging from 8-54 ppm (Low to Very High) on the weak Bray test. Soil potassium was very good, ranging from 141 to 213 (High to Very High, according to the UMN). Levels were highest around the farm place. Zinc levels were excellent. A test exceeding 0.9 ppm does not require additional zinc for corn production in most conditions. All samples tested above 1.0 ppm (1.0 – 7.9 ppm). Soils are calcareous in nature and are fine textured.

   Perkins:

   Six composite soil tests were taken on November 11th, 2014 from 0-6” and sent to MVTL Laboratories to be analyzed for Organic Matter, pH, Buffer pH, Phosphorus, Potassium, and Zinc. Soil texture was determined by examining the NRCS Soil Survey for Nobles County. Organic matter is high averaging 5.1% which is fairly typical for the region and soil types. The soil pH is slightly acidic ranging from 5.7 to 6.7 in the top 6 inches. Soil phosphorus is variable ranging from 8-22 ppm (Low to Very High) on the weak Bray test. Soil potassium was very good, ranging from 130 to 159 (Medium to Very High, according to the UMN). Zinc levels were excellent. A test exceeding 0.9 ppm does not require additional zinc for corn production in most conditions. All samples tested above 0.9 ppm (1.0 – 2.0 ppm). Soils are calcareous in nature and are fine textured.

   Hansberger:

   Twelve composite soil tests were taken on November 11th, 2014 from 0-6” and sent to MVTL Laboratories to be analyzed for Organic Matter, pH, Buffer pH, Phosphorus, Potassium, and Zinc. Soil texture was determined by examining the NRCS Soil...
Survey for Nobles County. Organic matter is high averaging 5.8% - ranging from 5.3 – 6.7%, which is fairly typical for the region and soil types. The soil pH is neutral to alkaline ranging from 6.3 to 7.6 in the top 6 inches. Soil phosphorus is variable ranging from 2-86 ppm (Very Low to Very High) on the weak Bray test. On the Olsen test, the ranges are 9 – 61 ppm which represents Medium to Very High phosphorus fertility. Soil potassium was excellent, ranging from 180 to 287 (Very High, according to the UMN). Zinc levels were excellent. A test exceeding 0.9 ppm does not require additional zinc for corn production in most conditions. All samples tested above 0.9 ppm (2.6 – 15.5 ppm). Soils are calcareous in nature and are fine textured.

Ackerman:

Six composite soil tests were taken on November 11th, 2014 from 0-6" and sent to MVTL Laboratories to be analyzed for Organic Matter, pH, Buffer pH, Phosphorus, Potassium, and Zinc. Soil texture was determined by examining the NRCS Soil Survey for Jackson County. Organic matter is high averaging 5.9% which is fairly typical for the region and soil types. The soil pH is slightly acidic ranging from 5.8 to 7.3 in the top 6 inches. Soil phosphorus is variable ranging from 14-54 ppm (Medium to Very High) on the weak Bray test. Soil potassium was very good, ranging from 138 to 207 (High to Very High, according to the UMN). Zinc levels were excellent. A test exceeding 0.9 ppm does not require additional zinc for corn production in most conditions. All samples tested above 0.9 ppm (1.0 – 5.1 ppm). Soils are calcareous in nature and are fine textured.

4a. Have all monitoring stations been established in EQuIS? □ Yes □ No □ N/A
4b. Are the data being routinely submitted for storage into EQuIS? □ Yes □ No □ N/A

If yes, last submittal date (mm/dd/yyyy): __________________________

5. Are the Best Management Practices data being annually entered into eLINK? □ Yes □ No □ N/A

If yes, date last entered (mm/dd/yyyy): __________________________

6. Describe specific (quantifiable, if possible) results achieved during this period:
n/a

Phosphorus Load Reduction: n/a lbs./year
Nitrogen Load Reduction: n/a lbs./year
Sediment Load Reduction: n/a lbs./year

7. Did the MPCA execute a change order or amendment for this project during this reporting period? No □ Yes □

If yes, summarize those changes:

8 List anticipated program objectives or tasks to be completed during the next six (6) months please be specific):

Objective 1. Task A: Cover crop termination.
Objective 1. Task B: Schedule approximate dates to take tillage transects, soil samples, and infiltration measurements.
Objective 1. Task B: Plan for cover crop seeding.
Objective 2. Task A: Establish Steering Committee.
Objective 2. Task B: Hold semi-annual meeting.
Objective 2. Task C: Update web page on the HLWD website.
Objective 3. Task A: Submit annual report.

III. Expenditure Information for this Period

Provide a copy of your work plan budget showing cumulative expenditures and budget balances by work plan objective and task. Also, fill out the summary below.

☑ Expenditure Report attached

Complete the table below:

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Grant Amount</td>
<td>$33,120.00</td>
</tr>
<tr>
<td>Total Match Amount (if applicable)</td>
<td>$30,980.00</td>
</tr>
<tr>
<td><strong>Total Project Amount</strong></td>
<td><strong>$64,100.00</strong></td>
</tr>
<tr>
<td>Grant Expenditures this period</td>
<td>$9,065.60</td>
</tr>
<tr>
<td>Match Expenditures this period (if applicable)</td>
<td>$4,042.90</td>
</tr>
<tr>
<td>Description</td>
<td>Amount</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Cumulative Grant Expenditures to date</td>
<td>$9,065.60</td>
</tr>
<tr>
<td>Cumulative Match Expenditures to date (if applicable)</td>
<td>$4,086.65</td>
</tr>
<tr>
<td><strong>Total Cumulative Expenditures to date</strong></td>
<td><strong>$13,152.25</strong></td>
</tr>
</tbody>
</table>

Date form completed (mm/dd/yyyy): 12/22/2014