PENNSYLVANIA GAME COMMISSION
BUREAU OF WILDLIFE MANAGEMENT
PROJECT ANNUAL JOB REPORT

PROJECT CODE NO.: 06230

TITLE: Statewide Wildlife Food Survey

JOB CODE NO.: 23000

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PERIOD COVERED: 1 July 2015 to 30 June 2016

COOPERATING AGENCIES: Pennsylvania Game Commission; Department of Conservation and Natural Resources' Bureau of State Parks and Bureau of Forestry

WORK LOCATION(S): Statewide

PREPARED BY: Mark Ternent

DATE: 29 June 2016

ABSTRACT Employees of the Pennsylvania Game Commission and Department of Conservation and Natural Resources Bureau of Forestry were asked to rate the abundance and productivity of 28 fruit and nut bearing plants during 2015. Three hundred twenty-two surveys were returned. Respondents had an average of 12.0 years working in the area they reported about, and 73% said they spent more than half of their work-time outdoors. Although precipitation was widely reported as average, it varied seasonally and 39 respondents commented that rainfall was above-average the first half of summer and below-average during the second half. Two foods, corn and elderberry, had productivity ratings that were lower than in 2014. The lower rating for corn may have been due to the high rainfall levels during the spring and early summer that affected crop planting schedules. Eighteen foods had productivity ratings that were similar to 2014, and 8 foods were rated higher. Many of the foods with improved ratings were important late-summer and fall foods for wildlife, including beech, white oak, hickory, black cherry and apple. Taking into account all available foods, overall food conditions were rated as slightly better than in 2014. Forty-eight percent of respondents rated overall food conditions as average; 36% considered them above average, and 13% thought they were excellent. Few people (3%) rated overall conditions as less than average. This distribution was most similar to ratings reported in 2008 and 2013.

OBJECTIVE

To describe the availability of wildlife foods during 2015 and monitor annual variation in food conditions.

METHODS

A 2-page survey was electronically sent to employees of the Pennsylvania Game Commission and the Pennsylvania Department of Conservation and Natural Resources (DCNR) Bureau of Forestry who routinely work outdoors. Recipients included foresters, Wildlife Conservation Officers, land managers, biologists, and surveyors. People received the survey by e-mail during the week of 14 September and were asked to return completed surveys using e-mail by 9 October.

The survey contained a list of 28 plants that provide food for wildlife in Pennsylvania. We asked recipients to rate the abundance of each plant in their primary work area (e.g., scarce or absent, uncommon, common, abundant, or very abundant) and the amount of food each produced during 2013 (none or almost none, below average, average, above average, or excellent; Noyce and Garshelis 1997). At the end of the survey, respondents were asked to select 1 rating that best described overall food conditions (excellent, above average, average, below average, or poor).

Respondents also were asked to record how many years they had worked in the area they were reporting about, how much of their time was spent in the field (almost daily, more than half, about half, less than half, or almost never), the level of rainfall (excellent, above average, average, below average, or poor), and any additional comments.

Survey results were entered into a database and mean productivity ratings were calculated by county using the following values for each response: scarce or absent = 0, uncommon = 1, common = 2, abundant = 3, and very abundant = 4. Maps depicting areas of poor (mean ratings < 1.5), average (mean ratings ≥ 1.5 and < 2.5), and above average (mean ratings ≥ 2.5) production were generated for 14 foods considered to be universally important to wildlife in Pennsylvania.

RESULTS

Respondents

We received 322 completed surveys; 277 (86%) were from Game Commission staff and 45 (14%) were from DCNR employees. Respondents had an average of 12.0 years working in the county they were reporting on, and 73% spent more than half of their work-time outdoors. Many (182 of 320) reported being outdoors almost daily.

When asked about timing of the survey, 90% indicated that late September was good for judging nut and berry production of most plants listed on the survey. Seven percent suggested the survey be returned 1 to 3 weeks later.

The mean number of surveys received per county was 4.9, with all but Montour County being represented. Sixty-one counties had more than 1 survey.

Precipitation

Forty-one percent considered rainfall average in 2015 (23% in 2014), 24% considered it above average (49% in 2014), and 1% considered it excellent (14% in 2014; Fig. 1). This distribution was most comparable to results in 2008 and 2012. Although precipitation was widely

reported as average, it should be noted that rainfall varied seasonally. Thirty-nine respondents commented that rainfall was above-average the first half of summer and then below-average during the second half.

Food Production

Overall Food Conditions.--Ratings of overall food conditions were slightly better than in 2014, with fewer average, and slightly more above-average and excellent, ratings (Fig. 2). Forty-eight percent of respondents rated overall food conditions as average; 36% considered them above average, and 13% thought they were excellent. Few people (3%) rated overall conditions as less than average. The distribution of overall food ratings in 2015 was most similar to conditions reported in 2008 and 2013. The geographic distribution of how overall food conditions were rated is provided in Figure 3.

Individual Food Scores.--Eighty-two percent of the foods listed on the survey were rated as common to abundant. Holly, gooseberry, arrow-wood, Hercules club, and cucumber tree were rated as uncommon. Assessments of abundance were identical to those reported in 2013 and 2014.

Two foods, corn and elderberry, had productivity ratings that were lower than in 2014. The lower rating for corn may have been due to the high rainfall levels during the spring and early summer that affected crop planting schedules. Eighteen foods had productivity ratings that were similar to 2014, and 8 foods were rated higher (Fig. 4). Many of the foods with improved ratings are important late-summer and fall foods for wildlife, including beech, white oak, hickory, black cherry and apple. Nearly all soft mast species had crops that were similar to the previous year except for elderberry (decreased) and chokecherry (increased; Fig. 4).

The distribution of productivity ratings for 14 primary foods is provided in Figures 5, 6, 7, 8, 9, 10, and 11. Food species with similar ripening or physical characteristics are paired together to simplify interpretations.

RECOMMENDATIONS

1. This survey should be distributed again in mid to late September 2016.

2. The return date for surveys should continue to be early October.

LITERATURE CITED

Noyce, K. V., and D. L. Garshelis. 1997. Influence of natural food abundance on black bear harvests in Minnesota. Journal of Wildlife Management 61:1067–1074.

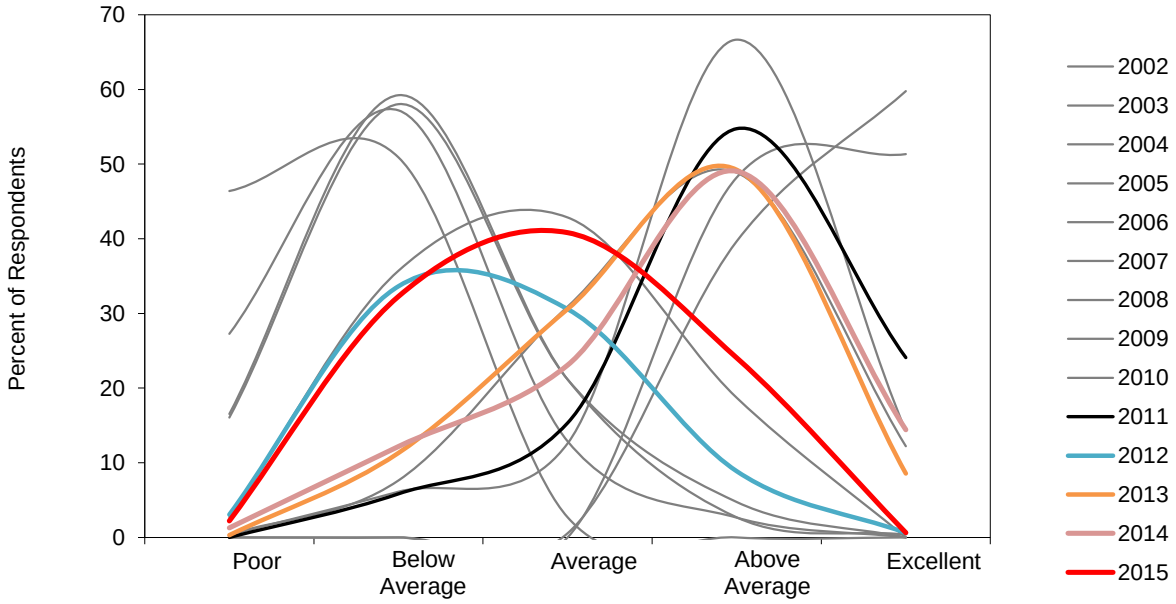

Figure 1. Precipitation (rainfall) ratings, 2002-2015.

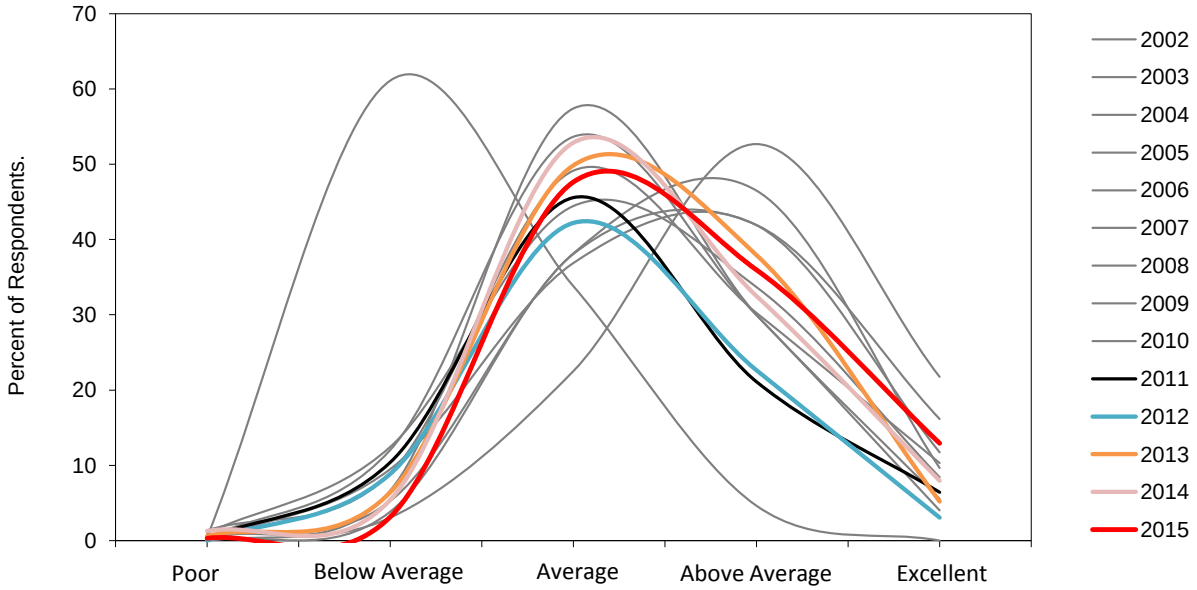

Figure 2. Ratings of overall food conditions, 2002-2015.

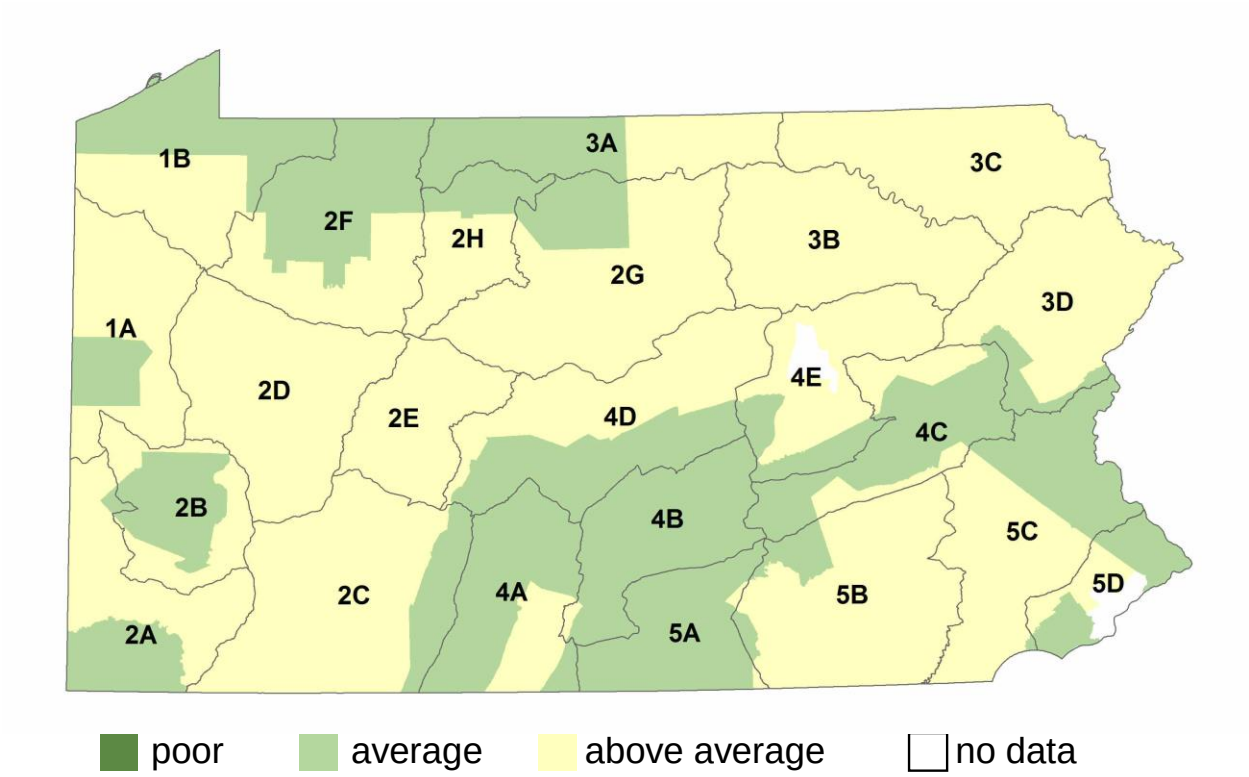

Figure 3. Distribution of how respondents rated overall food conditions in 2015.

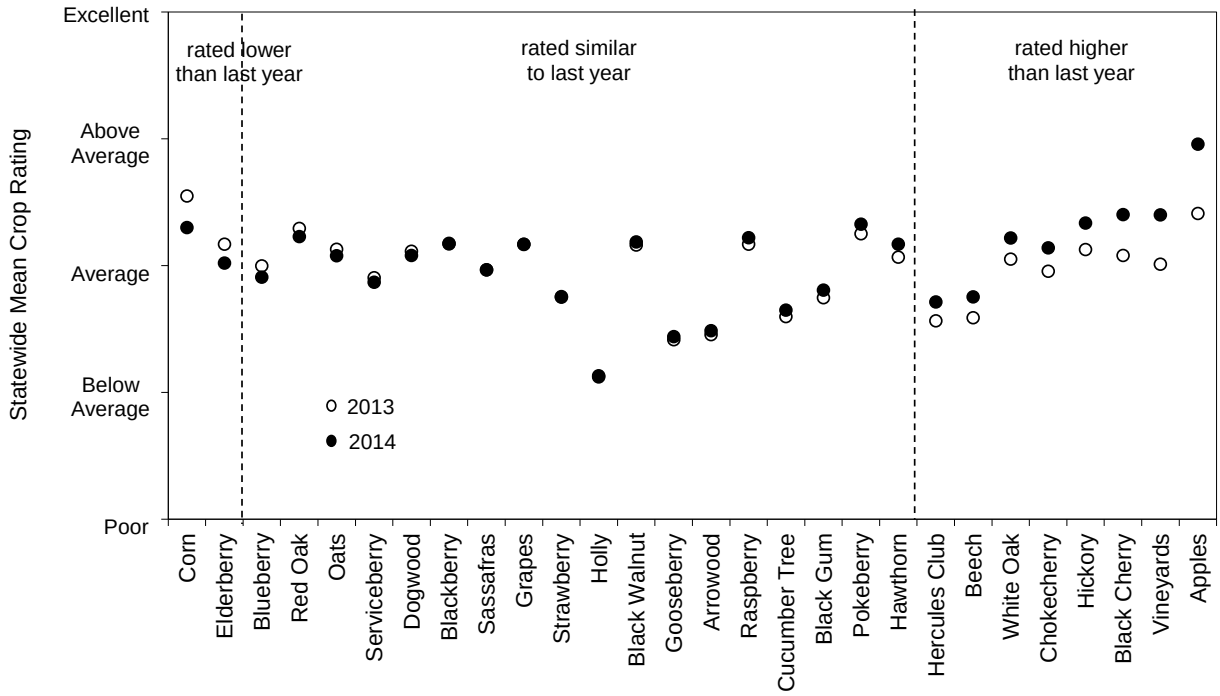

Figure 4. Perceived crop size for 28 wildlife foods based on results of an annual survey completed by field personnel throughout the state during 2015.

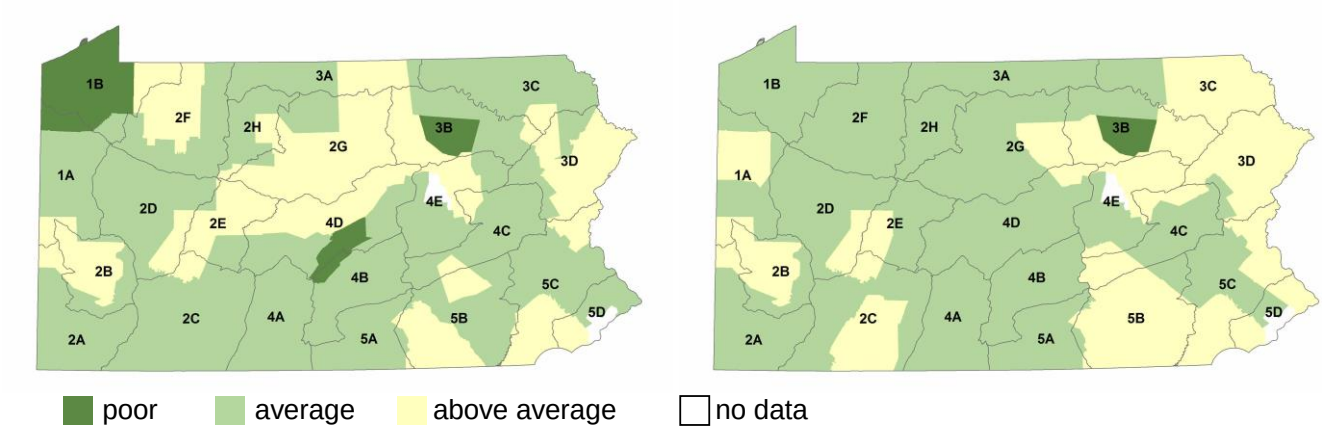

Figure 5. White oak (left) and red oak (right) production during 2015.

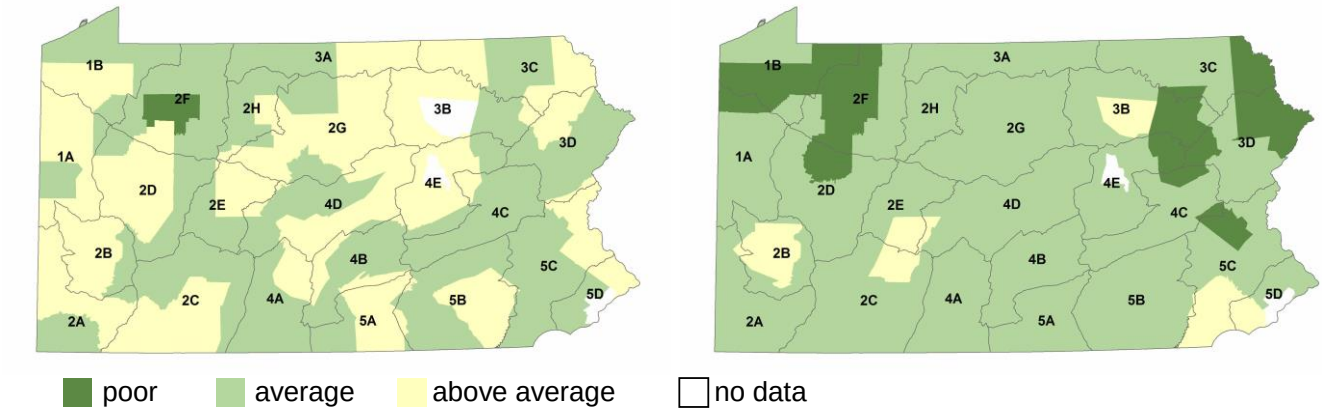

Figure 6. Hickory (left) and beech (right) production during 2015.

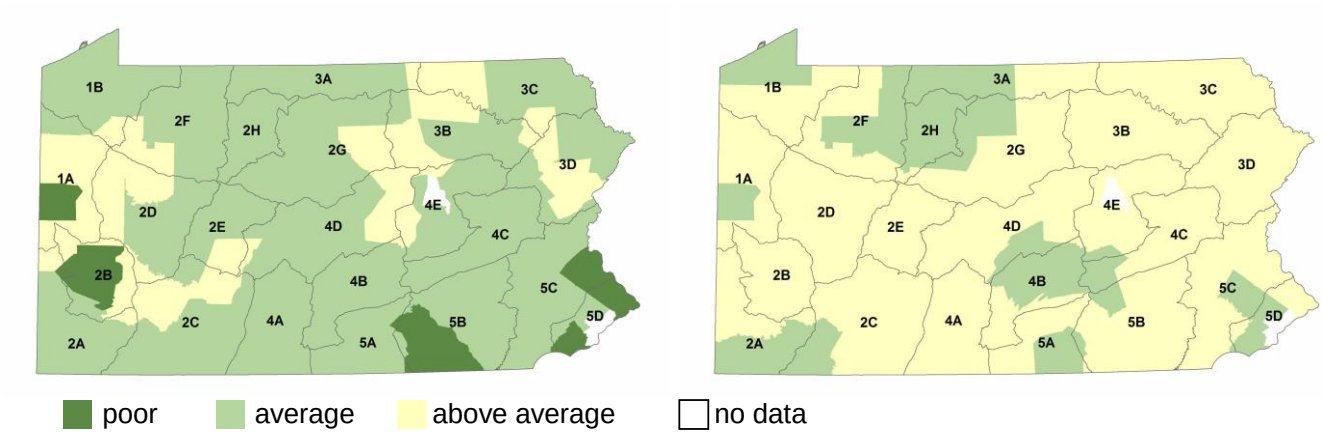

Figure 7. Hawthorn (left) and apple (right) production during 2015.

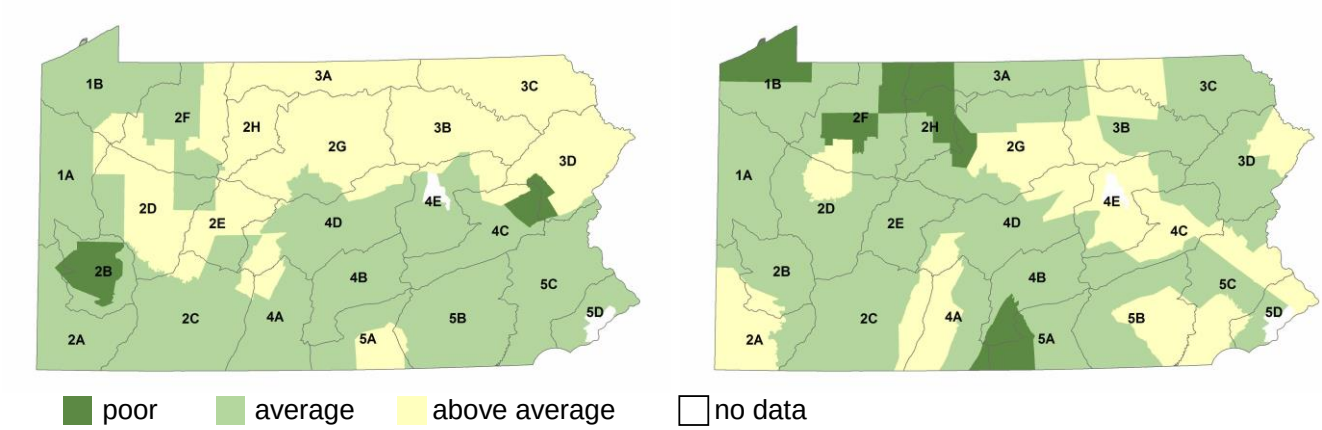

Figure 8. Black cherry (left) and grape (right) production during 2015.

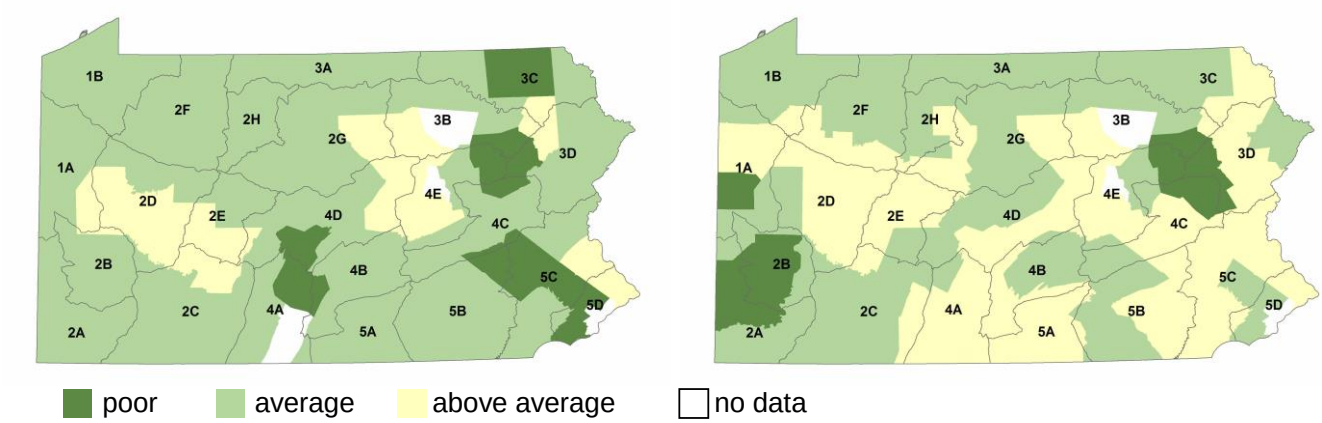

Figure 9. Elderberry (left) and pokeberry (right) production during 2015.

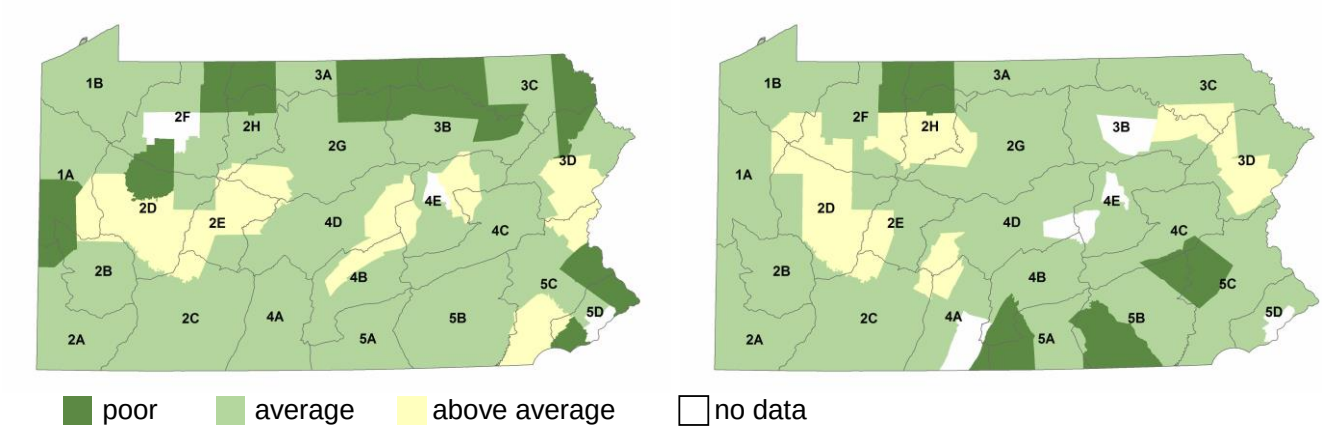

Figure 10. Sassafras (left) and chokecherry (right) production during 2015.

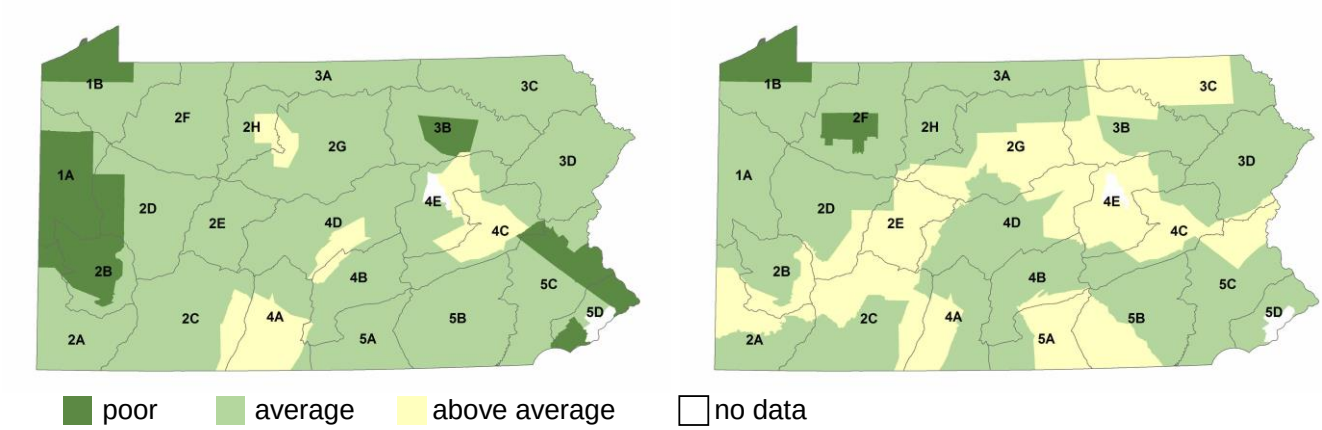

Figure 11. Blueberry (left) and blackberry (right) production during 2015.