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 2010 to 30 June 2011

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

WORK LOCATION(S): Statewide

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DATE: 1 July 2011

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 2010. Two hundred sixty surveys were returned. Respondents had an average of 14.2 years working in the area they reported about, and 65% said they spent more than half of their work-time outdoors. Four foods had productivity ratings that were lower than in 2009, 18 foods had productivity ratings that were similar, and 6 had ratings that were higher. The most noticeable change from 2009 was an increase in white oak, black cherry, and apple crops, which are all generally considered to be late-summer or fall foods. Another key fall food, red oaks, also posted a second consecutive year of above average production. Overall food conditions were rated as somewhere between average and above-average – slightly better than conditions reported in 2009 but below record conditions reported in 2005. Thirty-eight percent of respondents rated overall food conditions as average; 42% considered them above average, and 16% thought they were excellent. This distribution was most similar to ratings reported in 2003.

OBJECTIVE

To describe the availability of wildlife foods during 2010 and monitor annual variation in food conditions.

METHODS

A 2-page survey was electronically sent to employees of the Pennsylvania Game Commission (PGC) and 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 21 September and were asked to return completed surveys using e-mail by 18 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 2010 (none or almost none, below average, average, above average, or excellent). At the end of the survey, respondents were asked to select one 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 important to wildlife in Pennsylvania.

RESULTS

Respondents

We received 260 completed surveys; 224 (86%) were from PGC employees and 36 (14%) were from DCNR. Respondents had an average of 14.2 years working in the county they were reporting on, and 65% spent more than half of their work-time outdoors. Many (129 of 260) reported being outdoors almost daily.

When asked about timing of the survey, 89% indicated that late September was good for judging nut and berry production for all plants listed on the survey. Seven percent suggested the survey be returned 1 to 2 weeks later.

An average of 3.9 surveys was received per county, with all counties being represented. Sixty counties had more than one survey.

Precipitation

Seventy-six percent of respondents rated precipitation as below average, 21% considered it average, and 3% considered it above average. No one rated precipitation as excellent (Fig. 1). This distribution was most similar to results in 2005 and 2007, and a considerable decrease from conditions reported in 2009.

Food Production

Overall Food Conditions.--Thirty-eight percent of respondents rated overall food conditions as average; 42% considered them above average, and 16% thought they were excellent. Few people (4%) rated overall conditions as less than average. Ratings of overall food conditions were most similar to those reported in 2003 and 2004, and slightly better than conditions reported in 2009 (Fig. 2).

Average ratings tended to occur more in the northern half of the state, whereas almost the entire southern half was rated as above average. Potter County in WMU 3A was the only area to have a poor rating for overall food conditions (Fig. 3).

Individual Food Scores.--Eighty-two percent of the foods listed on the survey were rated as common to abundant. Holly, gooseberry, Hercules club, arrow-wood, and cucumber tree were rated as uncommon. These assessments of abundance were identical to those observed in 2009.

Four foods had productivity ratings that were lower than in 2009; 18 foods had productivity ratings that were similar, and 6 foods were rated higher (Fig. 4). The most noticeable change from 2009 was an increase in white oak, black cherry, and apple crops, which are all generally considered to be late-summer or fall foods. Another key fall food, red oaks, also posted a second consecutive year of above average production. With the exception of foods considered uncommon or marginally important to wildlife (e.g., holly, gooseberry, arrowood, Hercules club, or cucumber tree), most mid-summer soft mast species produced average crops that were similar to 2009 (Fig. 4).

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

RECOMMENDATIONS

1. This survey should be distributed again in mid to late September 2011.

2. The return date for surveys should continue to be the first week of October.

3. Holly, gooseberry, Hercules club, arrow-wood, and cucumber tree should be removed from the survey because they have consistently been rated as uncommon, resulting in a shorter survey.
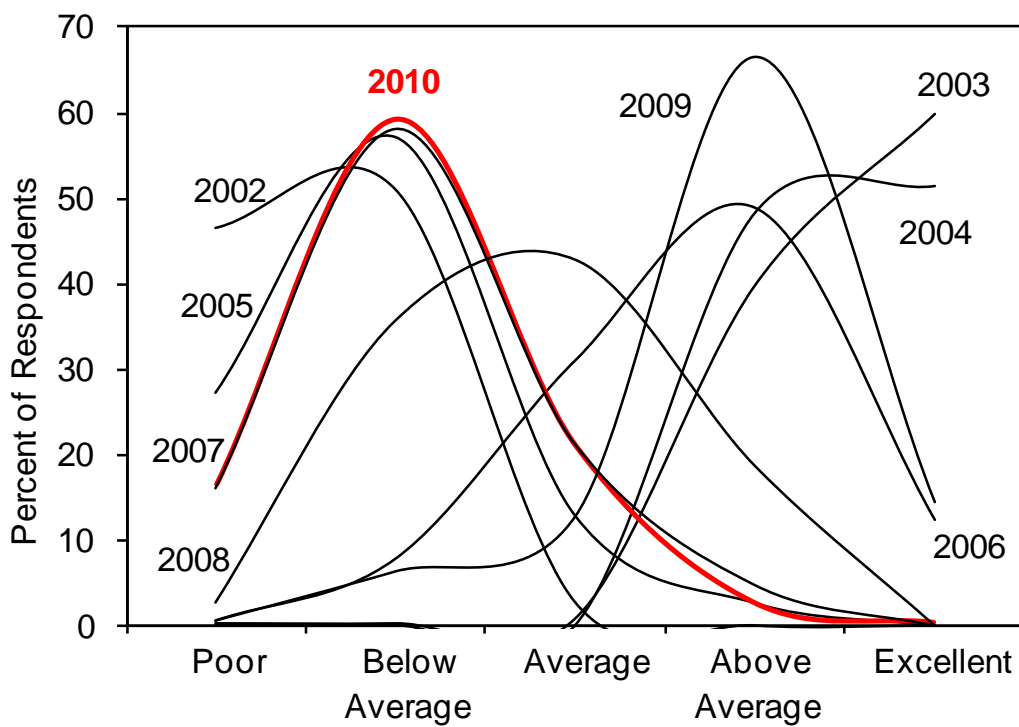
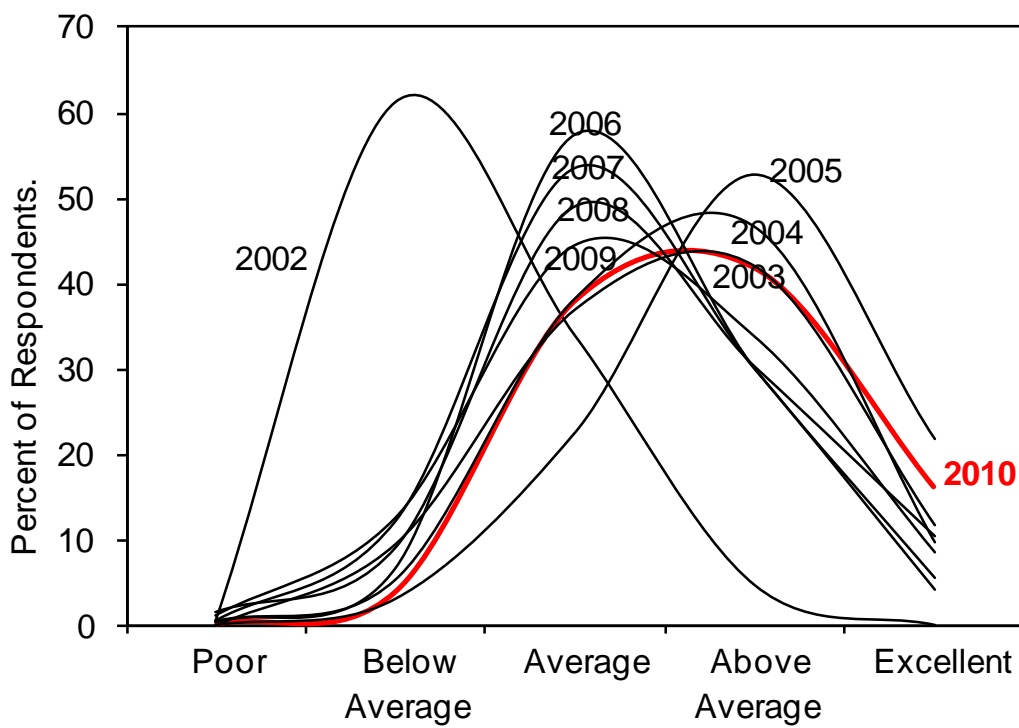Figure 1. Precipitation (rainfall) ratings, 2002-2010.

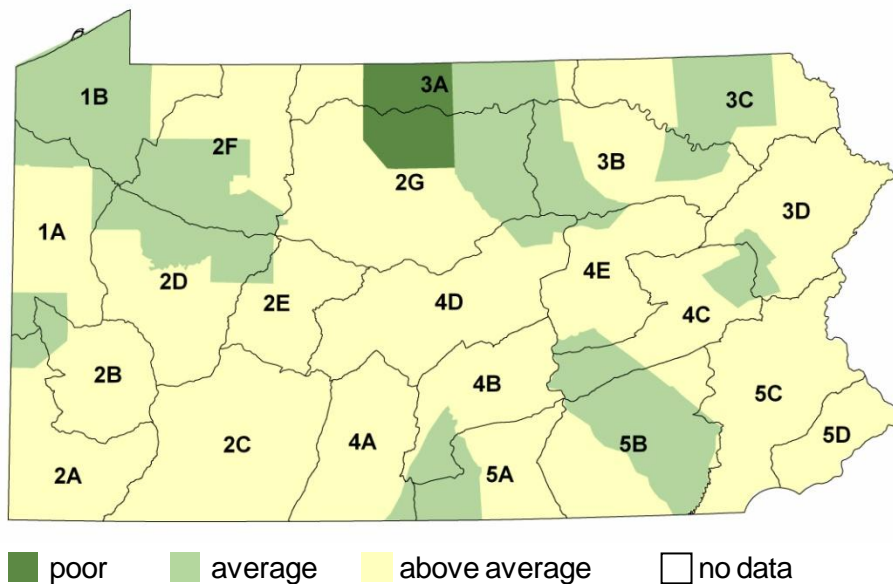Figure 2. Ratings of overall food conditions, 2002-2010.

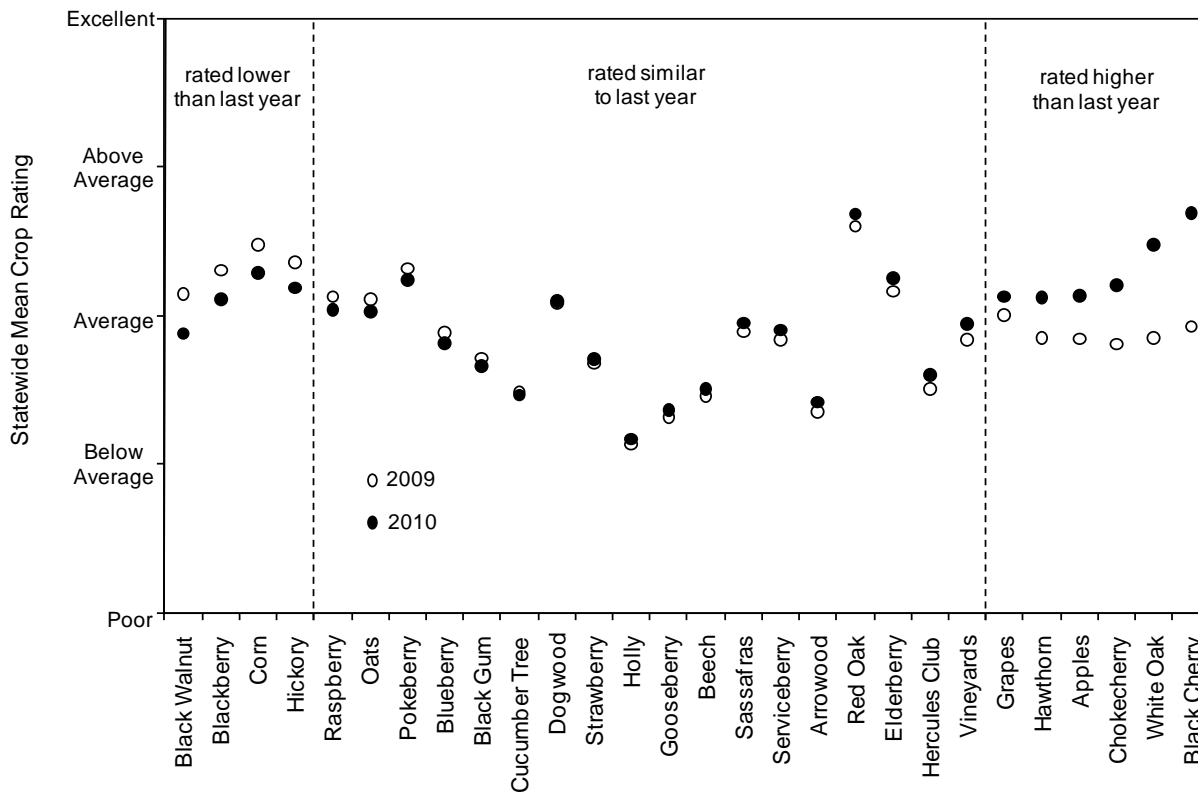Figure 3. Distri bution of how respondents rated overall food conditions in 2010.

Figure 4. Perceived crop size for 28 wildlife foods based on results of an annual survey completed by field personnel throughout the state during 2010.
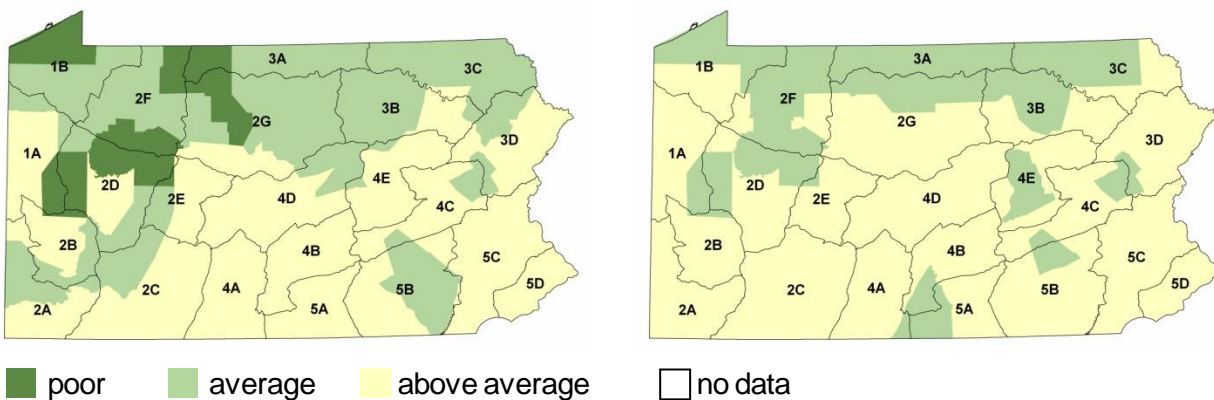
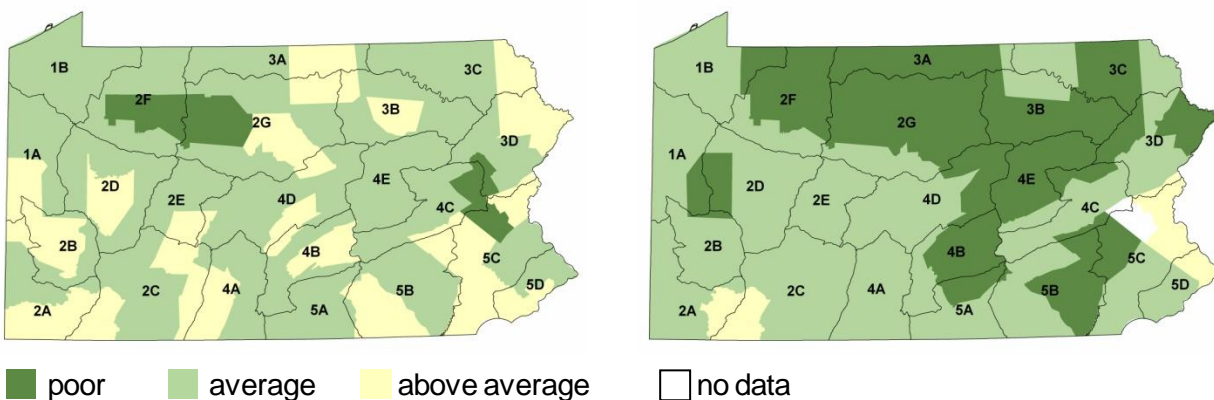Figure 5. White oak (left) and red oak (right) production during 2010.
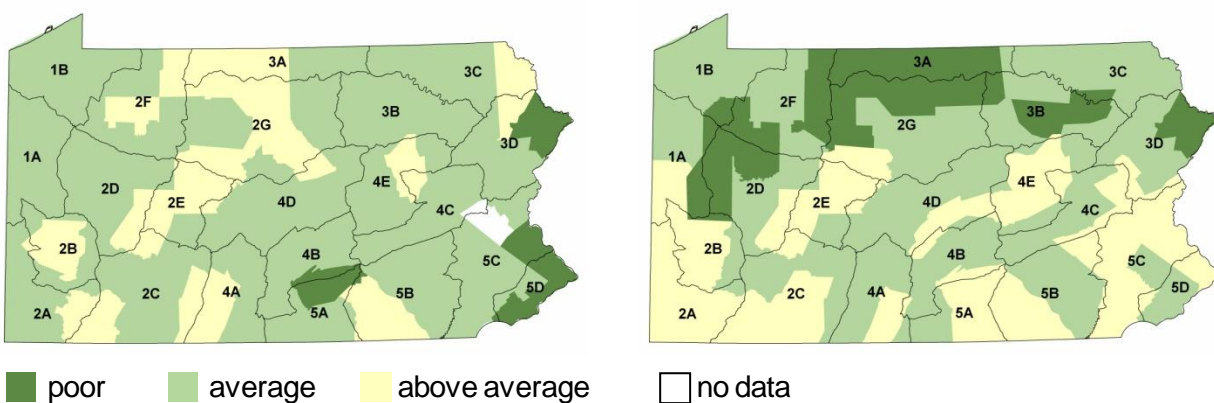

Figure 6. Hickory (left) and beech (right) production during 2010.

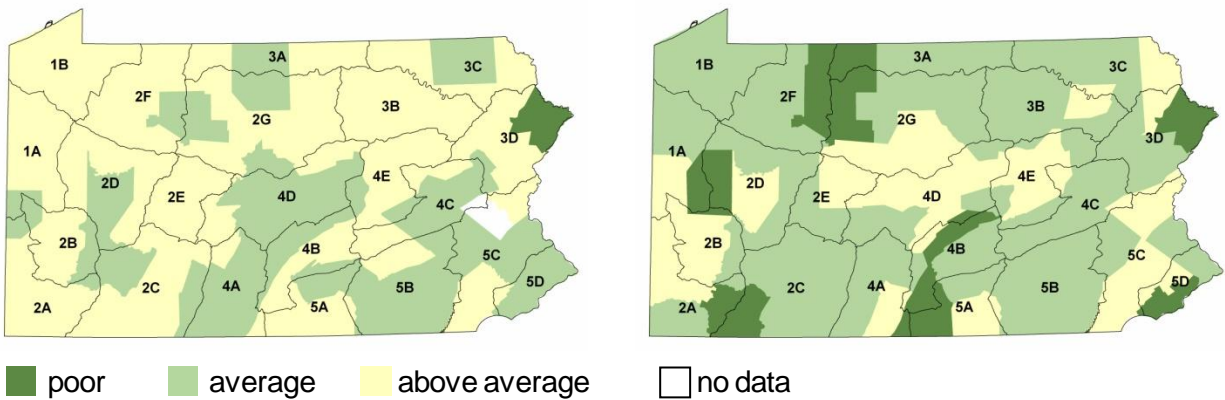Figure 7. Hawthorn (left) and apple (right) production during 2010.

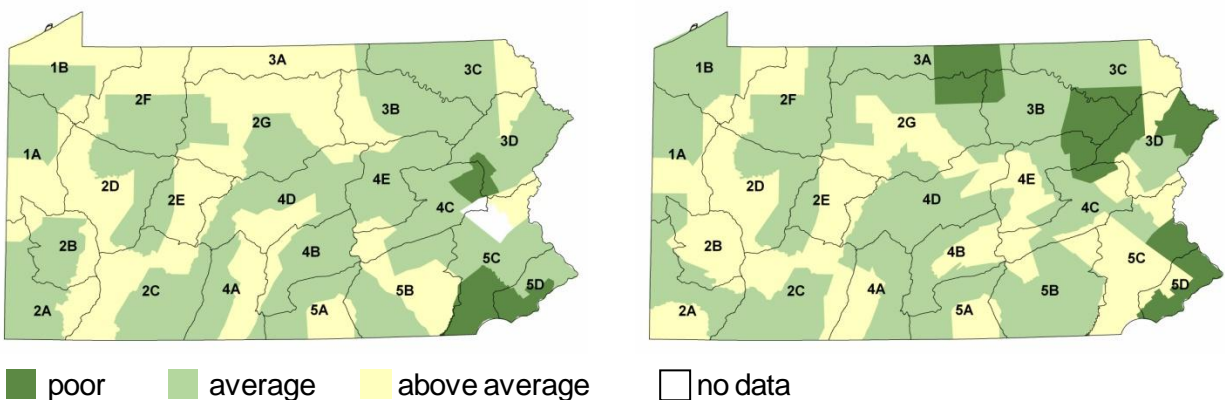Figure 8. Black cherry (left) and grape (right) production during 2010.

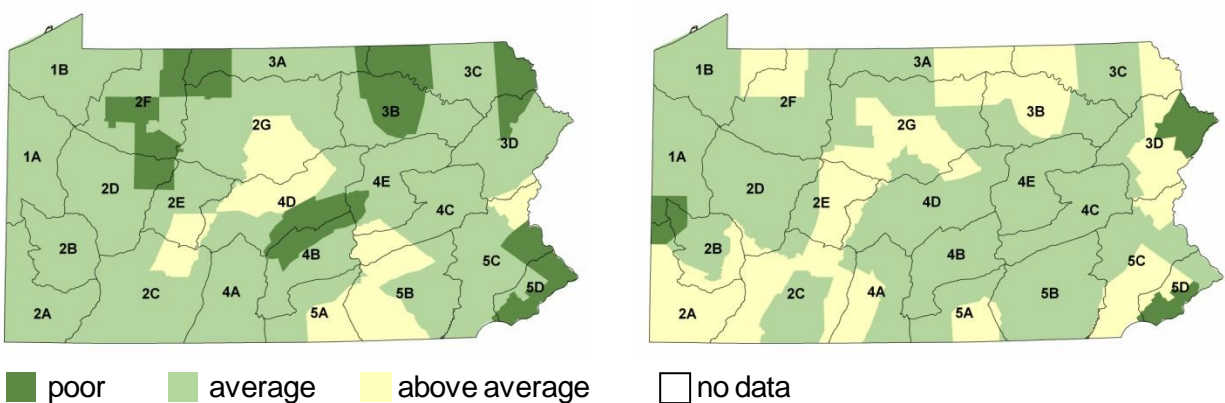Figure 9. Elderberry (left) and pokeberry (right) production during 2010.

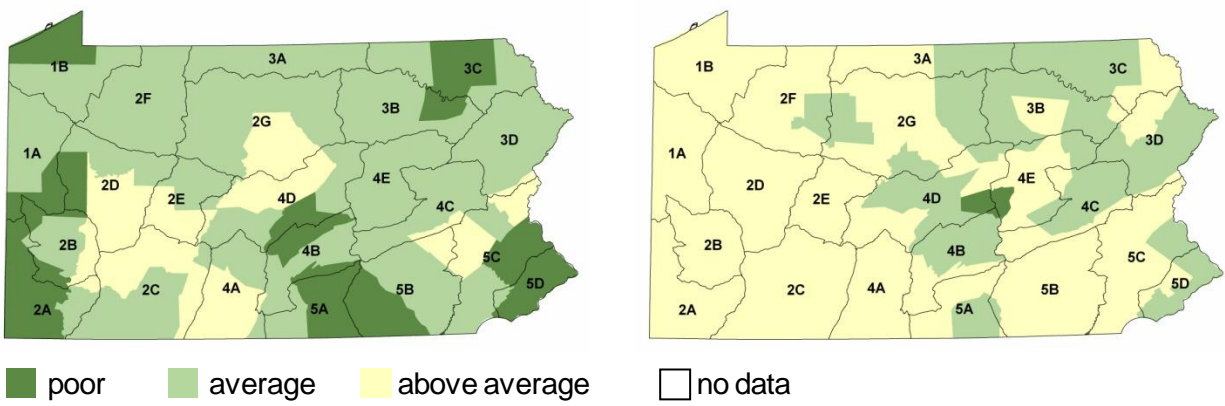Figure 10. Sassafras (left) and chokecherry (right) production during 2010.

Figure 11. Blueberry (left) and blackberry (right) production during 2010.