



NAPGA

E•NEWS

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President's Patch

The first part of the report, "Pawpaw Producers Survey Results," from the University of Missouri Center for Agroforestry (UMCA) was in E-News, Vol 4, Issue 4, 2017. The second part of the survey is the "Pawpaw Production Trial and After Purchase Results" found in this issue of E-News (Vol 5, Issue 1, 2018). These findings were sent to me by Zhen Cai to forward on to NAPGA/OPGA members for their participation in the survey.

Some of you know I've been ailing. I'm still seeking answers but progress is so slow. It may be an additional month before I have a diagnosis. On the positive side, I am spending lots and lots of time in front of the computer. Getting caught up on the NAPGA and OPGA newsletters, publications, and handouts. I have been looking out my back window for the last several days and have noticed the early spring wildflower, Aconite, in bloom. Spring can't be far away.

I am going to request assistance in providing pictures, comments, observations and even short or long articles for the E-News and the "Pawpaw Pickin's" newsletter. We will help make your writing a "polished" product for the newsletters. Tell us what is going on in your pawpaw planting, orchard, garden, etc. You just never know who else may be interested in your pictures or comments.

Don't forget to place the date
of May 19, 2018 on your
calendar.

The OPGA Annual meeting will be held at Wilmington College, Wilmington, OH. As soon as I have additional details regarding the annual meeting, I'll send everyone the details and registration form.

The focus of this year's annual meeting will be on establishing a NA pawpaw orchard. Brad Bergefurd and Matt Davies submitted a research proposal entitled, "Resource-Efficient, Ecologically Sustainable Pawpaw Orchard Production and Marketing Systems for Ohio". A brief summary follows and they will provide additional information at the meeting.

The overarching aim of this project is to provide existing and new pawpaw growers with an improved understanding of pawpaw varietal productivity and quality in Ohio. We will achieve this aim by completing X objectives:

- 1) Evaluate pawpaw productivity, fruit quality and disease susceptibility associated with a network of existing pawpaw plantings in Ohio. This will be achieved through collaboration with pawpaw producers and enthusiasts facilitated by the Ohio Pawpaw Growers Association .
- 2) Establish experimental pawpaw orchard across three campuses of Ohio State University, that represent a range of bioclimatic conditions observed in Ohio. These orchards will provide an opportunity for long-term evaluation of pawpaw varietal performance and the trialing of novel horticultural management practices.
- 3) Assess variation in pawpaw growth and establishment as a function of variety, rootstock source and site management (fertilization, irrigation, provision of shading).
- 4) Evaluate methods to improve the productivity of wild pawpaw stands including thinning, in-grafting of commercial varieties and hand pollination.

Pawpaw: Production Trial and After Production Survey Findings

University of Missouri Center for Agroforestry (UMCA) works with landowners to implement agroforestry, land use practices that combine trees, crops and/or animals for both production and conservation benefits. For a select group of products of potential value in agroforestry enterprises (e.g. chestnuts, black walnut, specialty mushrooms, red cedar, elderberry, etc.) UMCA conducts research to identify and describe the market and market participants from producers through processing to retail sales.

Pawpaw (*Asimina triloba* (L.) Dunal) is the only temperate zone species in the tropical Custard Apple family (Annonaceae) and therefore is a botanical cousin to a variety of tropical fruits including Cherimoya (*Annona cherimola*), Soursop (*Annona muricata*) and Custard Apple (*Annona reticulata*). Pawpaw is native to the US and when grown as a grafted "cultivar" in full sunlight, bears a large edible fruit with large seeds. It is eaten as fresh fruit or processed into desserts and baked goods. Pawpaw is green when unripe, maturing to yellow or brown. The fruit has a creamy flesh. Its flavor is "tropical-like", described as a combination of banana, mango and pineapple and varies by cultivar. Pawpaw fruit is higher in protein than bananas, apples or oranges and are a good source of calcium and vitamin C. Pawpaw protein contains all essential amino acids. The fatty acid profile is preferable to that of banana with 68% as monounsaturated or polyunsaturated. The downside to pawpaw is that they are very perishable, and when ripe will only keep two days at room temperature.

UMCA is working collaboratively with other institutions to identify improved pawpaw cultivars and management practices suitable for commercial pawpaw production. In addition, UMCA can provide guidance to growers in Missouri. Pawpaw cultivation can be attractive to organic growers because pawpaw is a native fruit with few pests and therefore requires little (if any) pesticide for cultivation.

Cultivar	No. of trees	Fruit #/tree	% fruit >200g	Fruit size (g)	Yield /Tree (kg)
Susquehanna	4	50	72	288	14.3
NC-1	5	40	70	241	9.1
10-35	4	60	57	210	11.8
Sunflower	4	90	41	197	17.7
Shenandoah	5	116	39	169	18.9
PA Golden	6	84	32	163	13.0
Mango	4	86	31	174	14.5
Prolific	5	84	15	126	10.5
Wells	4	84	8	143	13.1
Overleese	4	55	4	126	6.7

Table 1

UMCA's Horticulture and Agroforestry Research Center (HARC) pawpaw cultivar trial is part of a multi-location yield test that is a collaboration with The Pawpaw Foundation and Kentucky State University. Established rootstocks were grafted in place starting in the spring of 2002. Fruit yields were excellent due to high rainfall and moderate temperatures during most of the 2008 growing season (Table 1).

The HARC yield data compares well with a previous pawpaw cultivar trial report by Kentucky State University (<http://www.clemson.edu/hort/peach/pdfs/JAPS6225869.pdf>) except for the cultivar Overleese performing worse at HARC. Trees of many of these cultivars can be purchased locally from Forrest Keeling Nursery (www.fknursery.com) in Elsberry, MO or from Stark Bros Nursery (www.starkbros.com) in Louisiana, MO.

Along with production research, activities are ongoing to study the market and increase consumer awareness. In 2008, UMCA organized pawpaw sales at the Columbia farmers market and Clovers (a health and natural food store in Columbia, MO). At the farmers market, free tasting samples of pawpaw were provided. Fresh "cultivar" fruits were sold for \$1.00 each. An informational booklet, a follow-up survey and a self addressed, postage paid envelope were provided for each pawpaw sold to obtain "after purchase" information (i.e., if the consumers liked the pawpaws, if they plan to buy again).

A total of 29 surveys were collected. Some highlights of the results are presented below.

Who are the buyers?

Seventy-two of respondents tasted pawpaw for the first time, 17% have eaten before (1-2 times), and 7% have eaten pawpaw several times before (Fig.1).

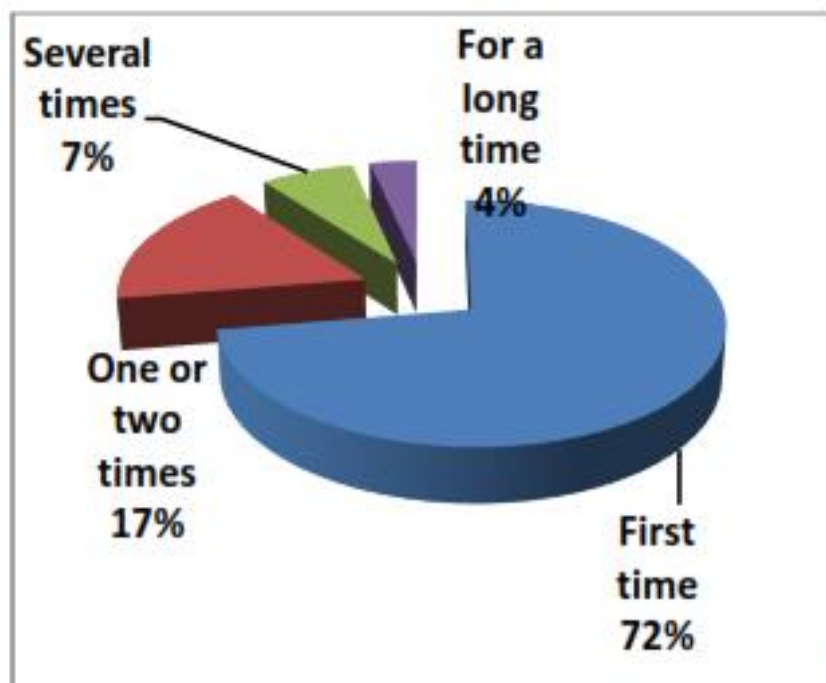
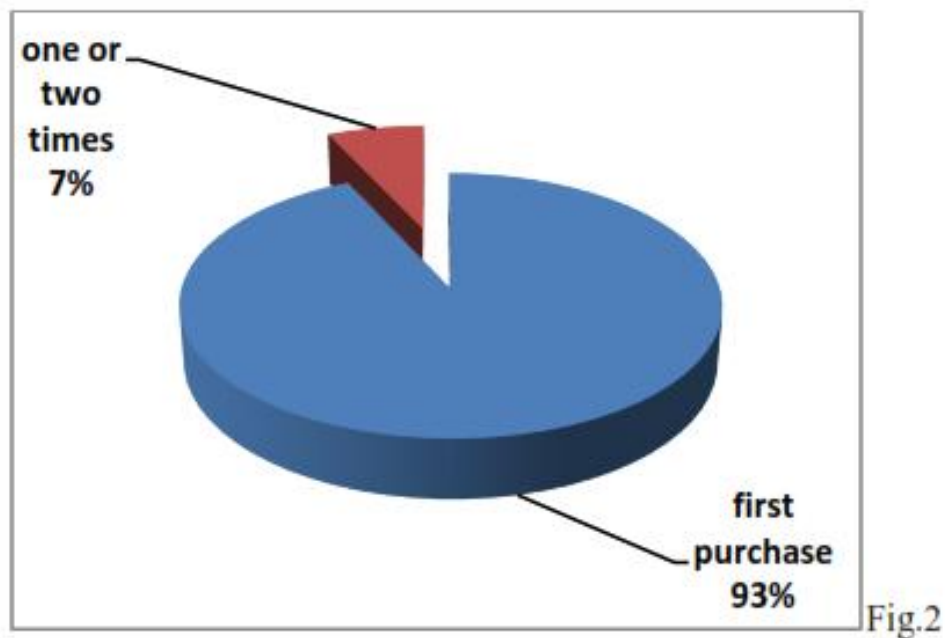


Fig.1

Ninety three percent of respondents stated that this was their first purchase of pawpaw, while 7% had previously purchased pawpaw (Fig.2).



Demographics

Twenty-two percent of respondents were younger than 35 years, 18% between 36 and 45, 36% between 46 and 55 years old, and 25% were over 55.

Twenty-four percent of respondents have a household income less than 35,000 per year, 48% between 35,000 and 50,000, 17% between 50,000 and 75,000, 7% between 75,000 and 100,000 and 28% more than 100,000 per year.

Seventy percent of respondents were female and 30% were male.

Fifty-five percent of respondents held a graduate degree, 38% were college graduates and 3% had a high school education.

Respondents' opinion about the pawpaw they purchased

Respondents were very satisfied with the pawpaw they purchased in terms of quality (appearance and taste) and price. Fifty-nine percent of respondents rated the appearance good and 24% very good. As mentioned, pawpaw fruit are highly perishable and their external appearance (unblemished green or yellow skin color) is retained for a short time. However, despite the appearance, 48% rated the taste very good and 45% good. Since almost all respondents purchased pawpaw for the first time, the opinion about price varied greatly (35% don't know, for 21% price was lower than expected, for 24% as expected and for 21% higher than expected (Fig.3).



Fig.3

Regarding future purchase of pawpaw, 97% liked the pawpaw, 93% would buy pawpaw again and 93% would recommend pawpaw to a friend.

The farmers market is the preferred outlet to purchase pawpaw (54% rated farmers market as their top buying preference). (Fig.4)

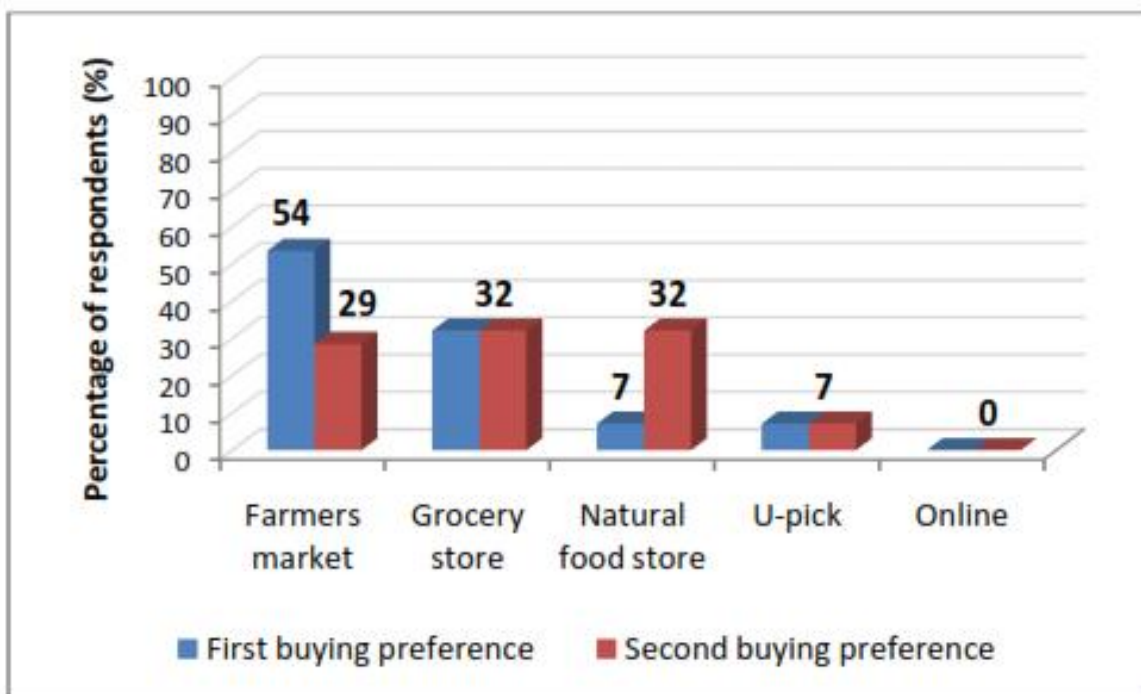


Fig.4

Other survey comments:

I would love to purchase and plant several trees. These were exceptional. I loved the taste and ease of eating.

I wish they were more readily available. The nutrition information was helpful.

They are OK, I would buy again on occasion (or at least eat if found) but would not buy regularly

Hard to eat, worth it. We enjoyed the brochure. It should include that the seeds can be planted.

I would buy again but not at \$1 each.

Excellent fruit! It should be sold everywhere possible. And it's local produce. Yahoo! Nice texture and coconut flavor. Yum!

Appreciate the survey and recipes. More people need to know about pawpaw.

As a child, a naturopathic doctor said I should eat pawpaw often. I loved them. I would like to eat them every year and know how to preserve them.

Delicious! I would definitely buy again. I already recommended pawpaw to friends, I even gave seeds.

Would try different uses, did not like the texture.

Too soft, creamy. Does seem like a tropical fruit though.

In conclusion, the majority respondents were pleased with the pawpaw purchased in terms of quality and price and would purchase again. Respondents prefer to buy pawpaw from farmers market or grocery store.

The favorable opinions expressed in the survey supports continued research to develop and test regionally adapted cultivars and additional promotion and sales to potential growers and consumers.

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