Sustainability in Horticulture: Consumer attitudes and preferences

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2014 Bioplastic Container Cropping Systems Conference
Not all consumers are alike

- Attitudes, preferences, behavior
- Even “green” consumer attitudes about the environment differ.
- What are biorenewable plant container characteristics deemed most desirable?

Gladwin et al., 1995, Academy of Management Review
Recent work by Hall et al. (2010) and Behe et al. (2013)

- Concern about environmental issues linked to increased interest in low-environmental-impact products.
- Container type and price was less important than plant type and where the plant was grown.
- Compostable containers were preferred over plantable containers; both were preferred over conventional.
- They divided the market into segments based on plant type preferences.
Our Survey Goals

- Determine consumer preference for container type.
- Provide a consumer profile for a person who would purchase a biorenewable container.
Participant Profile

215 participants
(27 percent response rate)

- 91 percent- homeowners
- 82 percent- 45 years or older
- 72 percent- female
- 66 percent- Bachelor’s degree or greater
Participant Profile

Annual Income

- < $40,000
- $40,000-$59,999
- $60,000-$79,999
- $80,000-$99,999
- $100,000+
- prefer not to say
Nearly half purchased plants 6 or more times during the past year.
Gardening/landscaping practices

Do you compost?

- Uncertain
- Never
- Occasionally
- Regularly

Do you use native plants?

- Uncertain
- Never
- Occasionally
- Regularly

Do you use water-conserving plants?

- Uncertain
- Never
- Occasionally
- Regularly
Do you use soil amendments?

- Compost
- Peat moss
- Triple Mix
- Animal manure
- Cover crops
- Other
- Do not use

Percent
Rate your degree of concern about:

- GMOs
- Mining peat bogs
- Chemical pesticides
- Chemical fertilizers
- Use of edible plants for biofuels

0 - Not at all concerned
2 - Very concerned
## Preference for Container Type

<table>
<thead>
<tr>
<th>Container Type</th>
<th>Likely to purchase (%)</th>
<th>Not likely to purchase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reusable/Recyclable</td>
<td>73.5</td>
<td>2.45</td>
</tr>
<tr>
<td>Biodegradable</td>
<td>76.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Compostable</td>
<td>75.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Fertilizes plant as it grows</td>
<td>65.1</td>
<td>12.0</td>
</tr>
</tbody>
</table>

20-24% were unsure whether they would purchase:
- They want an “ingredient list.”
- They want to see data that demonstrates container performance.
How much more would you pay?

Biodegradable

Compostable

Fertilizes plant as it grows

- $1.50
- $1.25
- $1.00
- $0.75
- $0.50
- $0.25
- $0.00

0 50 100 150 200
Income < $39,000

- Most are age 25-44 or 60+.
- 78 percent are female.
- Only 56 percent are homeowners.
- 53 percent have at least a Bachelor’s degree.
- Purchase plants less often (twice a year).
- 100 percent use compost in their gardens; nearly 40 percent use cover crops to improve their soil.
- Purchase more vegetable starts than flowering plants.
- Would only pay more ($0.25) for a pot that fertilizes the plant (value-added).
Income $40,000 to $59,999

- Mostly age 60+.
- 75 percent are female.
- 83 percent are homeowners.
- 74 percent have at least a Bachelor’s degree.
- Purchase plants 3 or more times per year.
- Purchase more flowering plants than vegetable starts.
- Would pay $0.50 more for a biodegradable pot; $1.00 more for a fertilizing pot.
Income $60,000 to $79,999

- Age 45 and older.
- Only 67 percent female (33 percent are male).
- 94 percent are homeowners.
- 36 percent have a post-graduate degree (MS or PhD).
- Purchase plants 6 or more times per year.
- Purchase annuals, perennials, vegetable starts equally.
- 44 percent use cover crops.
- Would only pay extra for compostable or fertilizing pot ($0.50).
Income $80k to $99,999k

- Most age 60+.
- 77 percent are female.
- 88 percent are homeowners.
- 41 percent have a post-graduate degree (MS or PhD).
- Purchase plants 6 or more times per year.
- Purchase perennials and vegetable starts equally.
- Would pay up to $1.00 more for a biodegradable pot; $1.50 more for a fertilizing pot.
Income $100,000+

- Mostly age 45 to 59.
- Nearly 40 percent are male.
- 97 percent are homeowners.
- 46 percent have a post-graduate degree (MS or PhD).
- Purchase plants 6 or more times per year.
- Purchase mostly vegetable starts and herbs.
- Would pay $0.25 more for a biodegradable or compostable pot; $0.75 more for a fertilizing pot.
Results

- Respondents valued plant quality over container type...
- But they were willing to purchase biorenewable pots if they improved or were neutral to plant health and the environment.
- Willingness to pay more for biorenewable containers was linked to household income.
- Respondents were more willing to pay extra for a pot that fertilizes than any for other type.
What are biorenewable plant container characteristics deemed most desirable?

- Does not negatively impact plant quality.
- No harmful residue left in the soil after pot degrades.
- Must completely biodegrade within the growing season.
- Some would prefer gallon-size containers.
- Some would like it to be consistent with USDA organic production standards.
Some written responses:

- Price and quality of the plant are my main concerns...the container is not important.
- Keep cost minimal to encourage use by all income levels.
- I support cutting out the useless production of [conventional] plastics.
- The only hesitation I have is knowing that the compostable container will probably be made of GMO corn, which is not allowed nor preferred in organic gardening.
- Is the container biodegradable in a home compost pile or the landfill? I would not want to plant the container with the plant, because things don't biodegrade very quickly in NV and it could lead to poor root development. And please don't call it the eco-container or something silly like that.
Responses specific to pots that fertilize:

- That would be a tremendous value, and would solve the issue of what to do with the container.
- I'd like this idea a lot if the container would also be biodegradable so the plant could get fertilizer through a large portion of its growth.  hmmmmmm  GREAT idea!
- Would the type of fertilizer be listed, as in organic, time-release, pet safe?
- I like to control my own fertilizer application rates.
- Concern about over-fertilizing.
- Do not like potting soil with fertilizer additives and probably would not be interested in pots with the same.
Conclusions

- Need to educate consumers about the container.
- Need labeling that describes:
  - How the container was made
  - Under what conditions it will decompose
  - How quickly it will decompose
  - Data on safety to soil organisms
  - Data on safety around children, pets
- Need to keep the price competitive / show value-added qualities.