1. **Name of the Planned Program.**

Commercial and Consumer Horticulture

2. **Program knowledge areas.**

- KA 204 Plant Product Quality and Utility (Preharvest) (20%)
- KA 205 Plant Management Systems (40%)
- KA 216 Integrated Pest Management Systems (20%)
- KA 124 Urban Forestry (10%)
- KA 502 New and Improved Food Products (10%)

3. **Program existence**

- Long Term (more than five years)

4. **Program duration**

- Long Term (more than five years)

5. **Brief summary about Planned Program**

The horticulture planned program joins commercial and consumer horticulture extension programs to provide accurate, research-based information for audiences in rural and urban settings in Iowa. The ISU Horticulture Extension staff in this area has the knowledge, abilities, and network to disseminate this information to our clients. The primary emphasis of this joint programming effort is to increase the strength of the horticulture industry in Iowa by 1) increasing the production and profitability horticulture related businesses, 2) increasing the quantity and quality of horticulture information disseminated, and 3) increasing community involvement.

6. **Situation and priorities**

The production, marketing, and selling of horticultural crops creates many jobs for Iowans. Commercial horticultural enterprises in Iowa consist of fruit, nut, herb, and vegetable producers, lawn care companies, golf courses, school athletic fields, turfgrass sod producers, production wholesale nurseries, re-wholesale nurseries, landscape design and installation firms, retail garden centers, landscape maintenance companies, arborists, greenhouse crop producers, retail florists, private grounds maintenance, public utilities, and city, county, and state public lands. Opportunities for growth are most promising in the non-food, horticulture industries of Iowa (turf, nursery/garden center and landscape, greenhouse crops, etc.) which constitute the fastest growing segment of Iowa's agricultural economy. Access to research-based information and programs that emphasize sustainable and environmentally sound production and management practices, value-based marketing, and new technologies, will increase profitability for the commercial greens industry in Iowa.

Three commercial greens industry categories are identified to facilitate efficient and comprehensive program delivery. They are; (1) grounds management firms, (2) fruit, vegetable,
and alternative crop producers and sellers, and (3) landscape plant producers and sellers. Existing programs deemed pertinent will be continued and new program offerings will be created as needed within each of the categories. Emphasis will be placed on employee training across all categories. In addition, applied research findings will be communicated to clients to strengthen and enhance the economic vitality of commercial horticultural enterprises in Iowa.

Gardening has been the most popular outdoor leisure activity in America for many years. Each year gardeners spend billions of dollars on plants, lawn and garden equipment, and garden supplies. Gardening is an activity that provides many benefits to the consumer including: exercise, nutritious food (fruits and vegetables), energy conservation, increased property value, and enhanced quality of life. There are many sources of information available in the area of consumer horticulture, but few of these sources provide accurate, research-based information. Access to research-based information and programs will help the consumer make wise decisions in plant selection, culture, and pest management.

The primary emphasis in consumer horticulture is to develop and expand resources and materials to assist gardening consumers and extension staff that work with gardening clientele. Information from the Hortline, newsletters, publications, newspaper articles, radio and television programs, websites, hands-on workshops, Master Gardener training, and field days at demonstration gardens are examples of extension programming efforts that reach the consumer horticulture audience. Continuing these programs and creating new ways to reach consumers are paramount in decision making for gardening consumers.

7. Assumptions made for the Program

As the demand for horticulture information and programming from professional and lay audiences continues to grow, ISU Horticulture Extension will play a pivotal role in creating, packaging, and distributing this information. With campus-based faculty and staff (4.7 FTE’s) devoted to Horticulture Extension, 2 full-time field specialists, over a dozen county-based consumer horticulture specialists, and CEED’s in every county who understand the importance of horticulture to Iowa’s economic vitality, ISU has assembled an impressive and extensive network of Extension staff to assist businesses and consumers with their numerous and important horticultural needs.

This ISU Horticulture Extension network has a strong and mutually beneficial relationship with Extension specialists in the Departments of Plant Pathology, Entomology, Food Science and Human Nutrition, Natural Resource Ecology and Management, Agronomy, Landscape Architecture, and a developing relationship with the Agriculture Marketing Resource Center and with the Iowa Department of Agriculture and Land Stewardship.

The ISU Horticulture Extension network also has developed close ties with the large and diverse horticulture industry and industry trade organizations in Iowa. These important relationships have helped ISU Horticulture Extension better understand and meet the educational needs of these clients, which in turn has helped them become or remain competitive in their specific market niche. ISU Horticulture Extension also has forged close working relationships with homeowner and volunteer groups in Iowa, further strengthening our ties to communities across the state.

While the flow of horticultural information and horticulture program development continues to follow a traditional path (from campus to field), county Extension offices continue to be the first point of contact for horticulture professionals and home gardeners. These accessible and client-friendly offices are staffed by Extension professionals who know how and where to retrieve information for a broad array of clients. They also serve as the home base for volunteer programs like the Master Gardener Program and the Iowa Community Tree Steward Program.
With limited budgets, county and campus-based staff must continue to seek financial support through external funding and cost recovery.

8. **Ultimate goal(s) of this Program**

Goal: Increase profitability of existing businesses related to small farm and horticulture production by increasing overall value of marketable products, efficient use of production inputs, and at the same time limit environmental contamination.

Goal: Conserve energy and other natural resources needed and used by the industry.

Goal: Increase county-based connection to community of horticulture producers and users through face-to-face meetings and diverse electronic media.

Goal: Provide knowledge, educational opportunities, and problem solving expertise for new or beginning alternative agriculture enterprises to be successful in horticulture plant production.

Goal: Improve Iowa’s urban and rural landscapes as a place to live through sustainable horticultural practices.

Goal: Incorporate IPM practices for not only growers but on public and commercial properties, home, landscapes, and communities.

Goal: Add a youth component to increase student’s entrepreneurial skills. This being accomplished through the 4-H and FFA programs in Iowa.

Goal: Improve the health and quality of life of Iowans through the consumption of fresh fruits and vegetables and exercise. Iowa State will continue to develop and enhance market managers ability’s in growing these places of business.

Goal: Promote and further develop Agriculture/horticulture Tourism in cooperation with IDALS. (Wine tours, pumpkin patches, Agritainment, Reiman Gardens, etc.)

Goal: Use technology to convey information directly to the homeowner and consumer through such programs as “Gardening in the Zone”, pod-casting, Master Gardener webcasts, websites, and web accessible publications.

Goal: Improve quality of content delivery and expand readership of horticulture information.

9. **Scope of Program**

In-State Extension
In-State Research
Multi-state Integrated Research and Extension

**Inputs for the Program**

10. **Expending formula funds or state-matching funds**

- Yes
11. Expending funds other than formula funds or state-matching funds

- Yes

12. Estimated amount of professional FTEs/SYs to be budgeted for this Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Extension</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>14</td>
<td></td>
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<tr>
<td>2010</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>14</td>
<td></td>
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</tbody>
</table>

Outputs for the Program

13. Activity (What will be done?)

- Develop new extension publications (web and print) as needed to disseminate information on applied research efforts and address changing gardening trends/concerns.
- Expand and enhance current websites and create new websites to address developing needs.
- Organize County, Area, State and Multi-state conferences to promote research, technical information, and promote economic development in the Midwest.
- Test and develop technical equipment and practices to serve the industry.
- Publish research results in refereed journal articles.
- Assist county extension staff with general gardening presentations to local communities.
- Continue field trials and research at ISU Research and Demonstration Farms and with commodity groups as a source of resource exploration and fact finding.
- Organize field days and educational programs to disseminate results from field trials and applied research.
- Assist new businesses with a directory of resources to start a business, financial, technical expertise, directory of suppliers.
- Train CEEDs who wish to improve their horticultural skills two times a year.
- Enhance the quality and quantity of newsletters (electronic and printed) delivered in each subject area.
- Support programs from external groups to increase profit potential of the industry and encourage adoption of Best Management Practices and IPM for environmental stewardship.
- Improve product quality and safety so it is more marketable for the industry.
- Increase awareness of the horticulture industry in Iowa and its affect on quality of life.

14. Type(s) of methods will be used to reach direct and indirect contacts.

<table>
<thead>
<tr>
<th>Extension</th>
<th>Indirect Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Methods</td>
<td></td>
</tr>
<tr>
<td>Conferences/symposia</td>
<td>Publications</td>
</tr>
<tr>
<td>In-service training</td>
<td>Web sites</td>
</tr>
<tr>
<td>Field meetings/demonstrations</td>
<td>Testing equipment</td>
</tr>
<tr>
<td>On and Off site consultations</td>
<td>Journal articles</td>
</tr>
</tbody>
</table>
15. Description of targeted audience.

- Turfgrass and grounds management firms
- Fruit and vegetable and alternative crop producers, sellers and processors
- Growers and sellers of landscape products and services
- Students considering horticulture as a career
- Homeowners and garden enthusiasts in Iowa

Target for the number of persons (contacts) to be reached through direct and indirect contact methods.

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Contacts Adults</th>
<th>Indirect Contacts Adults</th>
<th>Direct Contacts Youth</th>
<th>Indirect Contact Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>30,000</td>
<td>80,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>35,000</td>
<td>100,000</td>
<td></td>
<td></td>
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<tr>
<td>2009</td>
<td>40,000</td>
<td>150,000</td>
<td></td>
<td></td>
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<tr>
<td>2010</td>
<td>45,000</td>
<td>200,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>50,000</td>
<td>300,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. (Standard Research Target) Number of patents.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
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<tr>
<td>2008</td>
<td></td>
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<td>2009</td>
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<tr>
<td>2010</td>
<td></td>
</tr>
</tbody>
</table>

18. Output measures

**Output Text:** Number of Research Projects completed on ..................

2007 Target:
2008 Target:
2009 Target:
2010 Target:
2011 Target:

**Outcomes for the Program**

19. Outcome measures

**Outcome Text:** Increase the number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.

2007 Target: 1000
2008 Target: 1500
2009 Target: 2500
2010 Target: 3000
2011 Target: 3000
Outcome Text: Increase the number of new horticulture businesses and the expansion of existing horticulture businesses assisted through county offices.
2007 Target: 10
2008 Target: 15
2009 Target: 20
2010 Target: 25
2011 Target: 25
Outcome Text: Increase the strength of farmers markets in Iowa by cooperating with IDALS and WIC programs. (Measure number of ISU staff hours for Master Market training of vendors and working at farmer’s markets.)
2007 Target: 20 hours
2008 Target: 25
2009 Target: 25
2010 Target: 30
2011 Target: 30
Outcome Text: Increase involvement of Master Gardener volunteers in their communities. (Measure the number of volunteer hours per year.)
2007 Target: 80,000 hours
2008 Target: 90,000
2009 Target: 100,000
2010 Target: 100,000
2011 Target: 100,000
Outcome Text: Increase the quality and quantity of horticulture information accessible to the gardening public. (Measure number of peer-reviewed extension publications.)
2007 Target: 2
2008 Target: 2
2009 Target: 2
2010 Target: 3
2011 Target: 3

20. External factors which may affect outcomes.

- Iowa State Extension Specialists (State, Area and County Level)
- Community Colleges, and other Universities (within Iowa and surrounding states)
- Business leaders (within Iowa and surrounding states)
- Iowa Department of Agriculture and Land Stewardship
- Department of Transportation
- Economic Development Groups on the city, county, area and state level
- Iowa Corrections
- Iowa Department of Natural Resources, Farm Service Agency, and the US Natural Resources and Conservation Service.
- Iowa Farm Bureau
- Practical Farmers of Iowa
- Trees Forever
- County Conservation Boards and the County Board of Supervisors
- ISU Research Farms
- Private and non public organizations such as All American Selection Committee, American Rose Society, America In Bloom, etc.
- Iowa School Systems
- Iowa Network for Community Agriculture
- Campus Departments (Entomology, Plant Pathology, Agronomy, Sustainable Agriculture, Food and Nutrition, Agriculture Economics, Agriculture Education and Studies, etc.)
• Iowa Master Gardeners
• Iowa State Horticulture Society (24 affiliate organizations)


• Surveys will play a primary role in evaluating the outcome of educational and research efforts (including public municipalities and homeowners). 1) Survey producers to explore changes in production methods, awareness and use of pest resistant plants, use of market outlets, use of efficient or best management practices, and enhanced use of IPM techniques. 2) Survey gardening consumers on landscape practices, gardening concerns, and the quality of information provided by ISU Horticulture Extension. 3) Survey attendees of educational programming to measure economic impact, quality of life, etc.
• Growth in sector from the number of businesses and gross revenue as measured by the Iowa Statistics Department.
• Web sites and ratings received by third parties as well as the number of hits or usage.
• Evaluations of on-farm pilots/research (problem solving) with producers - economic impact of the model to be applied to future or larger audiences
• Measure of publications (number sold, accessed, downloaded, etc.)
• Subscriptions numbers of e-newsletters, alumni newsletters, etc.
• Measure Master Gardener volunteer hours and projects (number and type) in counties.

22. Data Collection Methods.

☑ Sampling
☐ Whole Population
☑ Survey
☑ Mail (surface, electronic)
☑ Telephone
☑ On-site
☐ Interview
☑ Structured/unstructured
☐ Case study
☐ Observation
☐ Portfolio reviews
☑ Tests
☑ Journals

Other