spots on the foliage. These are grayish-brown in color and become brittle in the center. Affected leaves may turn yellow and die. The disease is more prevalent in the open. Some varieties are more susceptible than others.

Control. Avoid splashing water onto the leaves. Spray with Benlate, Captan, Daconil 2787, Kocide 101, or Phaltan according to labeled directions.

7. Rust

Symptoms. Chocolate brown powdery pustules first appear on lower leaves, smaller on the underside. As the disease progresses up the plant, leaves will yellow and fall. Plants are weakened and may eventually die.

Control. Bayleton, Dithane M-45, and FORE are effective for control of rust on chrysanthemums. Follow labeled instructions exactly. Avoid splashing water on the foliage when watering the crop.

8. Verticilim Wilt

Symptoms. Margins of leaves turn yellow and eventually wilt or dry up. This begins at the base of the plant and works up the stem. May affect one side of a stem or plant more than the other. No distinct spotting. Examination of the stem tissue of affected plants may reveal brown streaking in the vascular bundles. Varieties vary in resistance.

Control. May be avoided by purchasing disease-free cuttings from cultured stock. Plant only into disease-free growing medium. There are no effective chemical controls.

9. Fusarium Wilt

Symptoms. This disease is becoming more common in potted greenhouse crops. *Fusarium* is a fungal wilt disease, causing symptoms similar to those described above for Verticillium wilt and is often mistaken for Verticillim wilt.

Control. Control may be achieved by avoiding splashing water and practicing good sanitation. Always use disease-free cuttings from a reliable source. Benlate drenches may be used preventively, but are usually not recommended unless there has been a previous occurrence of the disease in the greenhouse.

10. Virus Diseases

Symptoms. Virus particles cannot be seen by light microscopes. They multiply within the cells of affected plants without killing those cells. They are present in the sap of diseased plants and many can be transmitted to a healthy plant through wounds or by mechanical means. The chrysanthemum is known to be affected with at least seven viruses; yellows, spotted wilt, flower distortion, aspermy, rosette, mosaic, and stunt. Stunt is one that has caused some concern of late. It has been found that aphids as well as mechanical handling will cause stunt to spread. Western Flower Thrips will spread spotted wilt virus from plant to plant. Concurrent with the recent widespread activity of Western Flower Thrips may well be more widespread occurrence of spotted wilt virus.

Control. Virus diseases may be avoided by purchasing virus-free plants and maintaining good aphid and thrips control. If virus is noted in a crop, remove and destroy all infected plants immediately. There are no chemical controls specifically for virus control on chrysanthemums.

Promoting And Marketing Bedding Plants "Communities As A Potential Customer"

It's a pleasure for me to share the topic of "Community Beautification with Flowers." Few uses of bedding plants are as visible and beautiful as the use of annuals flowers by public and private institutions. It is these groups that can and occasionally do incorporate large, well-planned areas of flowering annuals into patios, malls, horticulture gardens, and other areas visible to literally thousands of people every year.

Gale L. Arent

In the spring of 1978, I conducted a survey on the use of bedding plants by Michigan municipalities. The purposes of the survey were to:

1. Determine the extent of bedding plant use by Michigan cities.
2. Discover where the cities secured their plants. I was especially interested in determining whether or not there exists significant market for bedding plant wholesalers and retailers in Michigan cities.
3. Gain insights into who plants and cares for annual flower plantings in Michigan cities.
4. Evaluate citizen response to the use of bedding plants in public areas.
5. Determine obstacles to the use of annual flowers among cities that do not use your product.

The results of this survey represent over half of all Michigan cities. A total of 278 cities from all sizes responded to my survey. To facilitate the analysis of these responses, the cities were placed into three size categories as follows:

Small cities —	*less than 2,500 citizens*
Medium cities —	*2,500 to 10,000 citizens*
Large cities —	*over 10,000 citizens*

Seventy-one percent of all Michigan cities used bedding plants this summer! This widespread use of flowers should be extremely gratifying to all of us in the bedding plant industry. This statistic demonstrates the public recognition of your product as one that can contribute to more beautiful communities.

Detailed analysis of the responses shows that a higher percentage of the larger cities use bedding plants. The chart below indicates that 91% of all the larger cities use bedding plants compared to 54% of the smaller cities.

Gale L. Arent
Kalamazoo County Extension Director
201 West Kalamazoo
Kalamazoo, MI 49006

Rhizoctonia. When using any drench fungicide or other growing medium treatment, be sure and follow exactly all labeled use directions. When dosage ranges are given, use the lower end of the range unless the disease is already present in the crop. If the disease is present, fungicides will not totally cure the plant. However, using the higher range of the labeled dosage will help achieve some control more quickly and more readily prevent uninfected plants from succumbing to the diseases.

3. Cottony Stem Blight

Symptoms. The organism is easily recognized by the dense, white, wet-appearing, cottony mass-like growth on the stems. Associated with this growth, often within the stem cavity, are hard black seed-like sclerotia or fungal masses sometimes up to ¼-inch across. In poorly ventilated, damp houses, the disease spreads rapidly. However, expression of the disease is rarely seen on greenhouse chrysanthemums and then only when poor regulation of temperature and humidity prevail.

Control. Ventilate properly. Remove the infected plant material and burn. Be careful to clean up and burn all crop residue. Hard sclerotia are able to persist in growing medium for many months and infect subsequent plantings. Growing medium sanitation with heat is the only way to effectively kill them. Terraclor will work as a preventive, but is not normally recommended unless the disease has been previously present in the greenhouse.

4. Flower Rots

A. RAY BLIGHTS

Symptoms. The ray blight fungus, *Ascochyta chrysanthemi,* may attack any part of the chrysanthemum plant during its normal growing cycle. The name "ray blight" is derived from the fact that symptoms often appear on the ray florets of a developing flower.

(1) Petals on one side of the flower turn dark brown or black from their base outward and tend to stick together.

(2) Rot may progress down the flower stem.

(3) Blossom falls apart.

(4) The leaves and unopened buds also may be attacked, producing a mushy, black brown spotting and rotting under continued moist, moderately warm conditions. The rot may extend from the leaves into the stem causing a brown to black lesion which may eventually girdle the stem and cause death at the top of the plant. In severe cases, rot will weaken the stems sufficiently to permit flopping over of the flower heads. This sort of blight is also seen when previously infected cuttings are being rooted under mist.

(5) The infected leaf tissue may resemble Septoria leaf spot but it is differentiated by the lack of the circular spot pattern common to *Septoria* and the presence of yellowing of tissue next to the infection lesion of *Ascochyta*.

Control. When the crop is finished, thoroughly clean the growing area and destroy all chrysanthemum tissue collected. Once the fungus infects the flowers, no applications of fungicidal sprays can stop the disease without damaging the flowers or leaving an unsightly residue. Lower the humidity as much as practical to prevent disease. Ray blight is not that common on greenhouse grown potted chrysanthemums. Thus, regular preventive sprays are not required. Effective ray blight preventive fungicides include Benlate, FORE, Dithane M-45, Daconil 2787, Zyban, and Chipco 26019.

Ascochyta is potentially one of the most serious diseases of chrysanthemums. If it is detected, a thorough spray program must be initiated at once. The organism may reside in residue from crop to crop. Once ray blight has gained entry into your greenhouse, remember that continuously cropped areas will require extra precautions regarding cleanup and general sanitation. It is important to know that the disease attacks not only the flower but also the foliage. It can spread rapidly on cuttings during propagation.

B. BOTRYTIS

Symptoms. The *Botrytis* fungus also may attack any part of a chrysanthemum plant during its normal growing cycle and frequently causes the greatest losses on mature flowers in transit. Expression of the disease varies considerably from Ascochyta ray blight.

(1) It does not attack the flower bud from inside and is usually found on a more mature or fully opened flower.

(2) Foliage infections are characteristically soft brown and upon drying do not have any distinguishing features.

(3) Foliar *Botrytis* is found most often on the lower leaves shaded in the center of the pot.

(4) Mature infections will produce visible threads of mycelium that may produce tufts or growths of brown, spore laden mold.

(5) The organism most readily attacks injured tissue such as that burned from excess fertilizer or sunburn.

Control. Reduce the water that stands on flowers and foliage as much as possible. Do not ship plants with moisture on leaves or flowers. Spray regularly during humid weather periods with Benlate, Daconil 2787, Chipco 26019, Ornalin, Captan, Zyban, Dithane M-45, or FORE. Always follow labeled instructions exactly. Exotherm-Termil is also available for smoke vaporizing in greenhouses to control *Botrytis*.

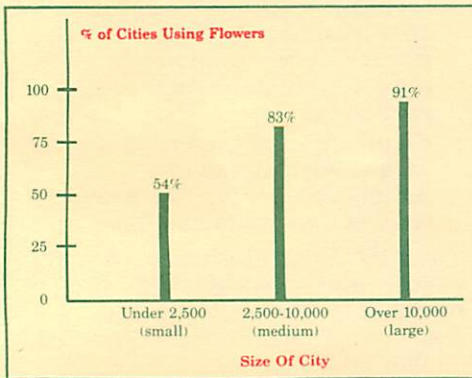
5. Powdery Mildew

Symptoms. Whitish powdery growth on upper surface of leaves. The growth begins as distinct spots, which later enlarge and merge together. Some varieties are more susceptible than others.

Control. When the disease is first detected, spray at regular intervals with Benlate, Karathane, Milban, or Bayleton. Follow labeled instructions exactly. Ventilate and heat greenhouses at dusk to prevent rapid drops in temperature and dew formation on leaves. Good air circulation around the plants is also helpful. Stop growing extremely susceptible varieties if repeated outbreaks of powdery mildew occur.

6. Soptoria Leaf Spot or Leaf Blight

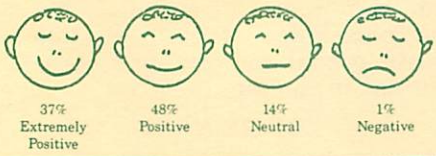
Symptoms. Distinct circular



PEOPLE HAVE BEDDING PLANTS EVERYWHERE

One of the questions asked on the survey was "Where are bedding plants used in your city?" The answer was "Just about any place." However, the leading location was in the parks of 40% of the cities; 27% used them in shopping areas and 13% of the cities used flowers near the entrance sign to their city.

It was also encouraging to note that the citizen response to flowers was excellent. The city officials reported the following response by citizens to the use of flowers in their city. It should be noted that 85% of the cities reported a positive citizen response.



CITIES BUY BEDDING PLANTS

The fact that large numbers of cities use bedding plants leads directly into the next question, "Where do cities get their plants?" Another way you may want to think about this question is "Can I sell cities bedding plants?" An analysis of the survey results should help us answer these questions.

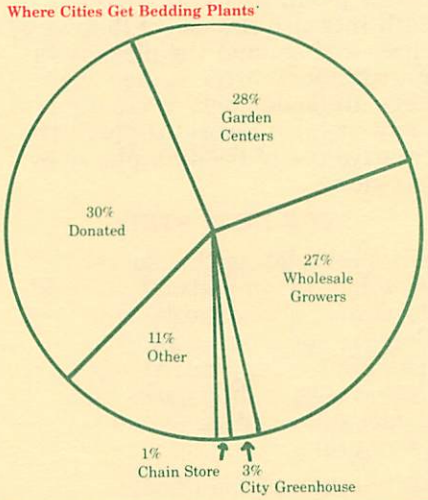
The following graph shows that cities acquire their bedding plants from three primary sources:

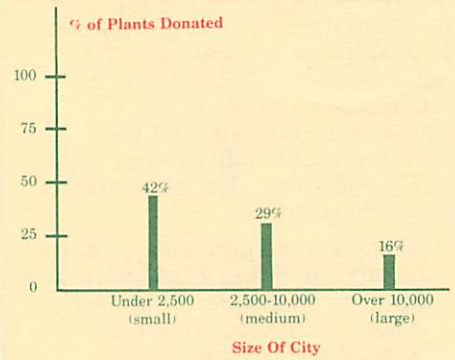
- 30% of the cities reported that the flowers they use are donated. Most annual flower donations are from service clubs and civic groups who purchase them from chain stores and garden centers.
- 28% of the cities reported that the bedding plants were purchased from garden centers.

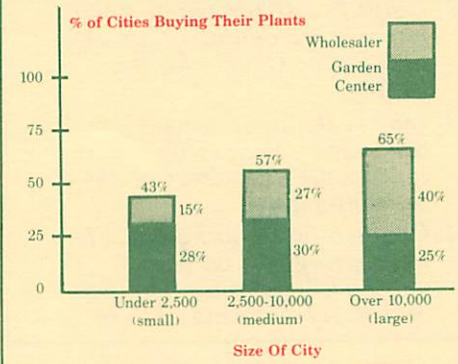
It should be noted that only 1% of the cities purchased bedding plants from a chain store.

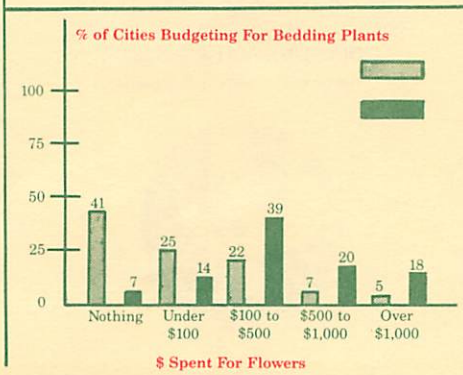
- 27% of the cities purchased their bedding plants from wholesale growers.

The survey was analyzed further to determine the relationship









between donations as the source of flowers and the size of the city. The chart on the following page shows that donated flowers are a fairly common source of bedding plants for the small cities with 42% of them securing flowers as gifts. On the other hand, donations represent the source of bedding plants for only 16% of the larger cities.

A similar analysis was done for cities purchasing bedding plants. This data is extremely revealing. It shows a relatively constant and significant percentage (25% to 30%) of the cities purchasing bedding plants from garden centers. However, there is a direct relationship between city size and the number of cities purchasing bedding plants from wholesale growers!

Another way of evaluating the willingness of cities to buy flowers is to see how much they budget for the purchase of bedding plants. An analysis of the percent of all cities budgeting funds to purchase flowers could lead to the pessimistic conclusion that very few cities plan to buy flowers. Forty-one percent of the cities do not budget any funds for flowers and only 5% budget over $1,000.

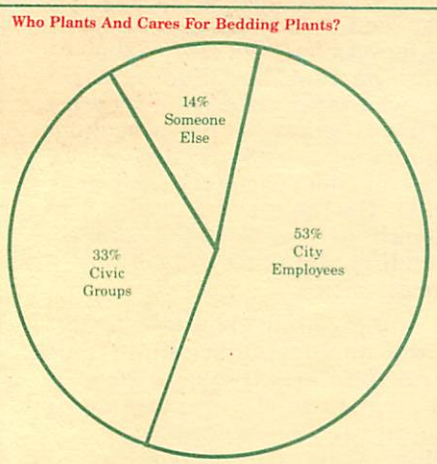
However a closer look at the budgeting pattern of the larger cities shows that 77% of these cities budget over $100 for flowers and one-half of these cities plan to spend over $500 annually for flowers.

PLANTING AND CARING FOR BEDDING PLANTS

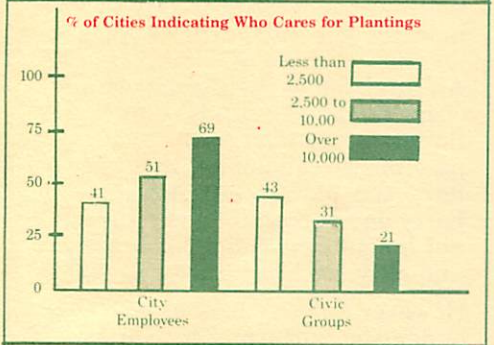
We all realize that nothing can match the colorful beauty of a well designed and cared for planting of annual flowers. On the other hand, a bed of flowers that is not adequately maintained is very unattractive. I think that we must keep this fact in mind when approaching cities as a market for bedding plants.

I felt it would be useful to give some insight regarding who plants and cares for the bedding plants in those Michigan cities using flowers. The graph below shows that 53% of the cities planting flowers have city employees do the planting and care of the flower beds. Thirty-three percent of the cities reported that civic groups did the planting and care work.

Again, this is a relationship between city and who plants and

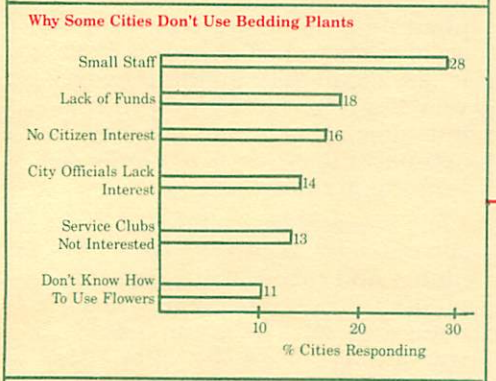


cares for bedding plants. The following chart shows that the bigger the city the more likely that city employees will do the planting and care of the flowers and not civic groups or other volunteers.



WHY SOME CITIES DON'T USE BEDDING PLANTS

I indicated earlier that 71% of all Michigan cities use bedding plants. What about the other 29%. Why don't they use your product? The reasons that these cities gave for not using bedding plants is summarized in the following chart.



OVERCOMING OBSTACLES THAT PREVENT BEDDING PLANT USE

Some of the reasons for not using bedding plants are lack of funds or staff resources within these cities. Other reasons cited by the cities suggest a lack of knowledge, enthusiasm, and creativity for flowers by city officials. When asked if the city would like information on how to use bedding plants in cities, 95% of all cities in the survey responded positively.

This desire for bedding plant information is a challenge that all of us should accept. If we do a better job in this area we will both increase the use of flowers by cities and expand the market for your product at the same time. Let's all do our part to create a more beautiful world through the creative use of bedding plants by our cities.

THE NEXT STEPS

Since completing this survey I have had the opportunity to visit numerous public gardens in Canada and Europe and was inspired by the positive impact that quality public parks and gardens have on an entire community.

Fully aware of the possible positive outcome, in 1984 a partnership was created between local units of government, the business community, the Kalamazoo Visitors and Convention Bureau, and the Bedding Plant Industry to create a flower festival. The objectives of FlowerFest are to:

1. *Showcase the products of the county's Bedding Plant Industry. Kalamazoo County leads the nation in the production of annual flower transplants.*
2. *Beautify selected public areas to improve the quality of life in Kalamazoo County for the summer.*
3. *Inspire the Kalamazoo community to beautify landscapes with creative use of bedding plants.*
4. *Create a floral background for the staging of a variety of worthwhile community events and the showcasing of local creative and performing artists, historic homes tour, flower show, landscaping workshops, and garden tour.*
5. *Create an environment that will assure the enjoyment of Kalamazoo County's summer visitors and residents alike.*

The 1984 Festival attracted 20,000 visitors and a very positive response to local officials and residents. FlowerFest '85 attracted 40,000 visitors.

THE BPI PARTNERSHIP

From the beginning BPI actively supported Kalamazoo FlowerFest as a "demonstration or model" for other communities for the creative use of bedding plants. This partnership eventually led the BPI Consumer Affairs committee to encourage Family Circle Magazine to sponsor a National Community Beautification with Flowers Contest in the summer of 1985.

The publication "Beautify Your Community with Flowers" was prepared and sent to communities entering the contest along with the BPI booklet entitled "Make Your World More Beautiful with Bedding Plants."

A slide set and script entitled "Community Beautification with Flowers" was also prepared and can be purchased from the BPI office for $50.00. It is an excellent motivational and content slide set for use in communities.

YOU'RE NEXT

You now have some tools to use to make your community a more beautiful place to live and visit. The creative use of bedding plants in public places will not only improve the quality of life, it also serves as a springboard to greater bedding plant sales to individuals and businesses. Why not make the summer of '86 the most colorful season in the history of your home town?

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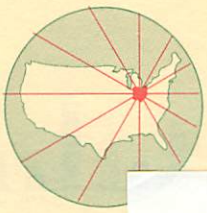

US30*a 87
George Staby
Perishables Research Organ
Box 2227
Novato,CA 94948