

Welcome To
Fourth Annual
Fall Chrysanthemum Show

**Department of Plant Sciences
College of Agriculture, Food Systems, and Natural Resources
North Dakota State University**

When

Children's Education Program
Monday, November 13, through Thursday, November 16, 2006
9:00 a.m. to 12:00 noon, Each Day

Flower Exhibition
Monday, November 20, through Wednesday, November 22, 2006
9:00 a.m. to 6:00 p.m., Monday and Tuesday
9:00 a.m. to 12:00 noon, Wednesday

Where

**Loftsgard Hall Atrium
North Dakota State University
Fargo, North Dakota**

Sponsors and Supporters

Yoder Brothers, Barberton, Ohio
North Dakota Nursery and Greenhouse Association
North Dakota State Horticultural Society
Northern Plains Botanic Garden Society
NDSU Horticulture Club
Michael's Arts and Crafts
Tessman Seed Company, Fargo
Shotwell Floral Greenhouses, Fargo
Baker Nursery Gardens, Fargo
JW Perry Company, Moorhead
Bergen's Greenhouses, Detroit Lakes, MN
Kroshus Landscaping Inc., Fargo
S & S Landscaping Co., Fargo
CJ & K Tree Farm, Oakes
Hornbacher's Foods, Fargo

Children's Education Program

Monday, November 13	9:00 a.m. to 12:00 noon
Tuesday, November 14	9:00 a.m. to 12:00 noon
Wednesday, November 15	9:00 a.m. to 12:00 noon
Thursday, November 16	9:00 a.m. to 12:00 noon

Show Schedule

Monday, November 20

8:00 a.m.	Judging of Entries
9:00 a.m.	Show Open
10:00 a.m.	Visit by News Media Dr. Albert Schneiter, Chair, Plant Sciences Department Dr. James Venette, Assoc. Director for Academic Programs, College of AFNR
6:00 p.m.	Show Closed

Tuesday, November 21

9:00 a.m.	Show Open
6:00 p.m.	Show Closed

Wednesday, November 22

9:00 a.m.	Show Open
12:00 noon	Show Closed

Chrysanthemum Flower Classes and Prizes

Inflorescence types: Disbud and spray

Flower types: Decorative, daisy, anemone, spoon, quilled, incurved, spider, and miniature

In each class, prizes will be given to 1st, 2nd, and 3rd places.

One grand champion prize will be selected from all categories.

Judges

Dale Herman, Plant Sciences Department, Chair
Larry Fischer, CJ and K Tree Farm
Russell Emerson, Ball Seed Company
Barbara Laschkewitsch, Plant Sciences Department
Ron Smith, Plant Sciences Department
Eric Baker, Baker Nursery Gardens

Show Committee

Rick Abrahamson, Jacob Berg, Larry Chaput, Brenda Deckard, Dale Herman, Jim Hilde, David Hopkins, Karen Kirmis, Chiwon Lee, Richard Mattern, Becky Oliver, Julian Post, Deborah Willard

Student Participants

Students enrolled in PLSC 210-Horticulture Science and PLSC 211-Horticulture Science Lab grew the plants throughout the fall semester:

Brandon Aman	Jacob Berg	Eric Brown	Jack Buckley	Shannon Buerkley
Calli Cebulski	Michael Chappo	Chelsea Clifton	Zachary Eberhard	Jacob Ell
Alana Engel	Steffen Falde	Bethany Fischer	Benjamin Gangelhoff	Daniel Geu
Derek Gorder	Tara Grimes	Erin Hackey	Paige Haugland	Nancy Hillen
Nancy Hillestad	Nathen Hlibichuk	Amy Johnson	Andrew Keating	Amy Kempenich
Karen Kirmis	Katelyn Kordon	Haerim Lee	Alan Lepp	Joshua Ludvigson
Matthew Lund	Garett Mairs	Tyler Malotky	Jacob Miller	Emily Mootz
Matthew Muehler	Joey Myers	Edith Nelson	Justin Nitshchke	Bethany Novak
Brandon Oppelt	Luke Otto	Levi Paradee	Bryan Ressler	Heather Ripley
Daniel Sawatzky	Samuel Schaapveld	Chase Schutt	Ransom Schutt	Derek Seifert
Amanda Smith	Stacy Snyder	Heather Sorenson	Kevin Teigen	Eric Tollefson
Dustin Tomoson	Aaron Traxler	Danielle Troske	Kale VanBruggen	Tony Webber
Suzanna Wenzel	Rebecca Wulf	Bill Zingg		

Chrysanthemums

Scientific Name

Dendranthema grandiflorum is the botanical name for the cultivated chrysanthemum. It was formerly known as *Chrysanthemum morifolium*.

Origin

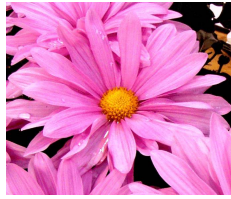
Chrysanthemums originated from China, where many different types have been grown for over 1400 years. Hybrid chrysanthemums have been grown in Korea and Japan for over 1200 years. Cultivation in Europe started in the 18th century.

Botany

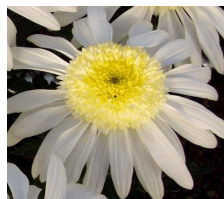
Chrysanthemum is a member of Asteraceae, the large aster family that includes the common sunflower, zinnia, and coneflowers. The modern day chrysanthemums are complex hybrids, involving *Dendranthema indicum* and *D. japonicum* as possible ancestors. The flower "head" is composed of disc florets in the center and ray florets on the outer edge.

Classification by Flower Types

Depending on the shape and arrangement of ray as well as disc florets on the head, chrysanthemum flowers are classified into eight different classes: daisy, anemone, quilled, spoon, decorative, spider, incurved, and pompons. In this display, the reflex and pompon flower types are not included.



Daisy



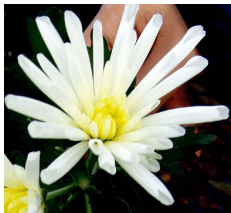
Anemone



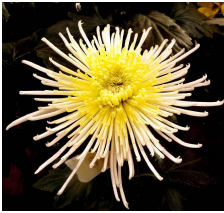
Spoon



Decorative



Quilled



Spider



Incurved



Miniature

Flower Induction

Chrysanthemum is typically a short-day (SD) plant, and flower bud formation takes place when the photoperiod is shorter than 12 hours. The time required from short-day treatment to flowering varies by cultivars (see cultivar list next page) from 7 to 10 weeks for potted plants. Garden mums, which require 6 to 8 weeks from the start of SD to blooming, usually initiate flower buds in response to naturally shortening days. Plants stay vegetative under long-day (>14 hours) conditions.

Pinching and Disbudding

Shoot-tips are removed (pinched) two weeks after planting to encourage multiple branching. When lateral shoots are 1.5" long, a SD treatment should commence. The natural SD condition starts around September 20 in Fargo. Depending on cultivar and desired inflorescence, flower buds are removed when they reach a button size. For spray mums, the center bud is removed for uniform development and blooming of the numerous lateral buds. For disbud mums, all lateral buds are removed to allow the remaining center buds to develop into large blossoms.



Spray



Disbud

Post-Bloom Plant Care

The blooming plants will retain colors for 3-4 weeks in well-lit areas under the normal home condition. Water plants as needed when a slight moisture stress symptom develops. Continuous exposure to water-logging inside the pot sleeve will encourage root rot. These plants are not winter-hardy like garden mums, although they will grow well outdoors, initiating flower buds in October. Unless the plants, after bud formation, are brought into the house, they will not survive the severe winter in this northern climate. So, you may discard them after blooms fade, and support the industry by buying new flowering mums next year. Good luck!

2006 Fall Chrysanthemum Show Cultivar List

Cultivar	Wk	Flower type	Color	Remarks
1. Amarillo	8	Decorative (4.4" diam)	Golden yellow	Disbud, spoon-tip petals
2. Amber Pomona	9	Decorative (4.5" diam)	Orange	Disbud or spray, medium vigor
3. Auburn	8	Daisy (3" diam)	Orange-red	Disbud or spray, medium vigor
4. Baton Rouge	8	Daisy (2.5" diam)	Red/yellow center	Spray, short
5. Butterfield	8	Decor/quilled (4.5" diam)	Yellow ctr/white edge	Disbud or spray, short
6. Cedar Falls	9	Daisy (3.5" diam)	Orange/bronze	Spray, medium vigor
7. Cocoa Beach	8	Daisy (4.5" diam)	Red	Disbud or spray, medium vigor
8. Coral Charm	8	Decorative	Bright Pink	Disbud or spray, medium vigor
9. Coral Graceland	8	Anemone	Pink	Disbud or spray, tall
10. Coral Splendor	9	Daisy (duplex)	Coral/salmon	Disbud, medium vigor
11. Covington	7	Decorative (4.5"diam)	Bright yellow	Disbud or spray, medium vigor
12. Dark Elmira	8	Decorative (1.5"diam)	Dk pink/lavender border	Spray, short
13. Elmira	8	Petite decorative (1.5")	Lt pink/dk pink edge	Spray , short
14. Fire Island	8	Daisy (4.5" diam)	Red, yell center	Disbud or spray, tall
15. Fontana	8	Spider (long)	Dark yellow	Disbud or spray, short
16. Fort Wayne	8	Daisy (2.5" diam)	Lavender	Spray, short
17. Gainesville	8	Decorative (4.5" diam)	White	Disbud or spray, medium vigor
18. Honey Graceland	8	Anemone, large (6" diam)	Orange	Disbud, tall growing, tall
19. Kodiak	8	Quilled Decorative	White/Ivory Tinge	Disbud or spray, medium vigor
20. Lafayette	8	Daisy (1.5" diam)	Bright yellow	Spray, medium
21. Leamington	7	Decorative (4" diam)	Perky peach	Disbud or spray, medium vigor
22. Manhattan	8	Decorative, spoon tip	Yellow	Disbud or spray, short
23. Mankato	8	Anemone (3" diam)	White/gr cushion	Disbud or spray, medium
24. Miramar	9	Daisy (large)	Yellow, green disk	Disbud or spray, medium vigor
25.. New York	8	Decorative (2.5" diam)	Pink	Spray, short
26. Niagara Falls	8	Daisy (2" diam)	Purple	Spray, short
27. Norwich	8	Decorative (4" diam)	Red	Disbud or spray, short
28. Orange Danville	8	Dahlia (4.5" diam)	Brilliant orange	Spray, medium vigor
29. Orange Davis	9	Daisy	Orange-bronze	Spray, medium vigor
30. Ottawa	7	Decorative (4" diam)	Glistening white	Disbud or spray, medium vigor
31. Pelee	8	Daisy (large)	Scarlet orange	Disbud, medium vigor
32. Plum charm	8	Decorative (4.5" diam)	Raspberry or fuchsia	Disbud or spray, medium vigor
33. Presidio	7	Decorative (4" diam)	Pink	Disbud or spray, tall
34. Providence	8	Decorative (3" diam)	Yellow	Disbud or spray, medium vigor
35. Raspberry Lompoc	8	Daisy (2.5" diam)	Red-coral	Spray, medium vigor
36. Red Auburn	8	Daisy (3"diam)	Red	Spray, medium vigor
37. Red Delano	8	Decorative (4.5" diam)	Lavender cntr/wt edge	Disbud, medium vigor
38. Reno	8	Daisy (2.5" diam)	Vivid orange	Spray, medium vigor
39. Seattle	8	Daisy (3.5" diam)	Red	Spray, medium vigor
40. Spring Delano	8	Decorative (large)	Lavender center/wt edge	Disbud, medium vigor
41. St. Louise	8	Daisy (3.5" diam)	Dk purple/white bicolor	Spray, medium vigor
42. Tahoe	7	Daisy	Pure White	Spray, tall
43. Tobago	8	Decorative *3.5" diam)	Dk yell/bt red	Spray, medium vigor
44. Trenton	8	Decorative (4.5"diam)	White/ivory	Disbud or spray, medium vigor
45. Veracruz	8	Spoon tip, daisy	Lt bronze to yell Ivory-white	Spray, tall growing
46. White Graceland	8	Anemone (6" diam)	White/ivory center	Disbud or spray, tall growing
47. Winnipeg	7	Decorative-quill	Dark lavender	Disbud or spray, medium vigor
48. Yellow Blush	8	Daisy (5" diam)	Yellow	Disbud or spray, medium vigor
49. Yellow Mankato	8	Anemone (3" diam)	Dk yell/golden cushion	Disbud or spray, medium vigor
50. Yellow Woodstock	8	Anemone (5" diam)	Lemon yellow	Disbud or spray, short

*Rooted cuttings were supplied by Yoder Brothers.

Plans for 2007 Fall Chrysanthemum Show

The 5th annual fall chrysanthemum show is expected to be held November 19-21, 2007. Entries from the general public, garden clubs, and horticulture organizations are encouraged. Those who are interested in growing cascading and other exotic mums as show entries can obtain rooted cuttings from Dr. Chiwon Lee (701-231-8062, chiwon.lee@ndsu.edu) in May and grow them outdoors. Outdoor-grown mums are pinched until mid-September, and brought into the greenhouse for flower initiation and show entry.