

# NTSI 2026

## Contest Handbook



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# Overview

## Purpose

The National Turfgrass Science Invitational is designed to stimulate student interest and to promote the turfgrass industry as a career choice. It also provides recognition for those who have demonstrated skills and competencies resulting from turfgrass science instruction in the agricultural education classroom and supervised agricultural experiences related to the care and maintenance of turfgrass.

## Objectives

Students will be able to

- A. Identify turfgrasses, weeds, pests, and diseases common in turfgrass systems in the United States.
- B. Demonstrate the ability to identify unhealthy plant conditions due to pests, nutrition, or physiological disorders and mechanical or chemical injuries.
- C. Demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, marketing and maintenance of turfgrass.
- D. Demonstrate the ability to identify, select, use, and maintain appropriate inputs and equipment for turfgrass management.
- E. Demonstrate skills in oral and written business communications.
- F. Demonstrate the ability to prepare accurate and legible records and reports, and to interpret business documents related to turfgrass management.

## Event Rules

(The following rules, policies and procedures relevant to this Invitational)

- The team will consist of four individuals, and all four scores will count toward the team score.
- The team score consists of the combined scores of each individual and the team activity in which all team members will participate.
- Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rain gear, warm clothes and closed toed shoes. Each participant must provide the following safety equipment, and it must be worn while on course or the participant will be disqualified.
- Students are required to bring their own pencils.
- All other equipment including clipboards will be furnished for the event. Participants must use the tools and equipment provided.
- Participants must follow instructions from event staff for handling materials during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.
- Observers will not be permitted in the event area while the event is in progress.



- No team, team member or team coach shall visit the event facilities to observe materials and facilities after Dec 1. Any team, team member or coach reported and proven to do so will cause the elimination of the team from the National Turfgrass Invitational.
- Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his or her assigned group leader throughout the event or until told to change leaders by the event superintendent.
- All participants will be given an identification number by which they will be designated throughout the event.
- All written materials will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the event site.
- Any participant in possession of an electronic device in the event area is subject to disqualification.

## Event Format

### Equipment

Materials to be provided by the student:

- Two no. 2 pencils
- Clipboard
- Calculator

Participants are not to bring:

- Cell phones or other electronic devices

### Individual Activities

*Knowledge Test (Written Exam - 100 points, 400 team points)*

- Multiple-choice questions will be selected from areas of the turfgrass industry reflected in the event objectives. This phase of the event will test participant knowledge and understanding of basic principles of turfgrass science and management.
- Each participant will be allowed 60 minutes to complete this phase of the event.

### Whole Team Activities

*Case Study (choice of one of four categories - 400 team points)*

- Themes
  - Best Management Practices
    - This may include topics and challenges related to:
      - Water management
      - Input reduction
      - Playing surface renovation



- IPM plan development and delivery
  - Industry Challenges
    - This may include topics and challenges related to:
      - Water management
      - Input management
      - Crew Management
      - Marketing
  - Operations
    - This may include topics and challenges related to:
      - Interfacing with the clubhouse
      - Communication with outside vendors/organizations
      - Schedules for preparation for event
  - Human Relations
    - This may include topics and challenges related to:
      - Crew management
      - Golfer/Athlete interface
      - Relationships with administration
      - Community engagement
- Each team will be allowed 30 minutes to complete this phase.

## **Partner Activities**

### *Practicum 1 - Stenciling*

- Participants will demonstrate safe, efficient, and accurate completion of a task related to the setup of a logo for application on a game field.

### *Practicum 2 - Measuring Firmness*

- Participants will demonstrate efficient and accurate use of a Clegg Impact Soil Tester to measure firmness on a playing surface.

### *Practicum 3 - Turf Repair*

- Participants will demonstrate safe, efficient, and complete repair of a damaged turf area using tools relevant to plugging a sod surface.

### *Practicum 4 - Irrigation Repair*

- Participants will demonstrate safe, efficient, and accurate construction of a swing joint assembly for application of irrigation water.

### *Practicum 5 - Calibration*

- Participants will demonstrate efficient and accurate calibration and set-up of a boom sprayer for an input application.



*Practicum 6 - Plant Material ID*

- Participants will demonstrate efficient and accurate identification of warm season turfgrass, cool season turfgrass, and native plant types based on prepared knowledge.

*Practicum 7 - Equipment ID*

- Participants will demonstrate efficient and accurate identification of equipment used to maintain athletic fields based on prepared knowledge.

*Practicum 8 - IPM ID*

- Participants will demonstrate efficient and accurate identification of insects, disease, and weeds found on and around an athletic field using prepared knowledge.

*Practicum [Alternate] - Field Layout*

- Participants will demonstrate efficient and accurate layout of a field for a football practice.

**Scoring**

<b>Contest Component</b>		<b>Activities</b>	<b>Individual Points</b>	<b>Team Points</b>
<b>Knowledge Test</b>		Written Exam	100	400
<b>Practicum</b>	<i>Skillset</i>	Stenciling	100	400
		Measuring Firmness	100	400
		Turf Repair	100	400
		Irrigation Repair	100	400
		Calibration	100	400
	<i>Identification</i>	Plant Materials	50	200
		Equipment	50	200
		Integrated Pest Management	50	200
	<b>Case Study</b>	<i>Communication</i>	-	400
<b>Total</b>			<b>750</b>	<b>3400</b>



## **Tiebreakers**

### *Team*

Tiebreakers for teams will be determined by adding together the individual ranking of team members.

The team with the lowest score will earn the tiebreak.

### *Individuals*

1. Knowledge exam
2. Turfgrass identification
3. Equipment identification
4. Total rotational practicum score

## **Request for Reasonable Accommodations**

The National Turfgrass Invitational is committed to providing equal access to our events and activities for all people.

This information will be kept confidential and will be used only to process the request. Our staff will review the request upon receipt and contact the requestor with additional information. The association cannot guarantee accommodations or assistance if a form is received less than 4 weeks before an event. Accommodations being requested that require the assistance of another person (nurse, interpreter, scribe, reader, etc.) is the responsibility of the school/requestor. It is also the school/requestor's responsibility to provide any approved equipment that aids in the accommodation process, if applicable.

## **Awards**

Awards will be presented at the awards ceremony to individuals and/or teams based upon their rankings. Awards are sponsored by cooperating industry sponsors as a special project and/or by the general fund of the National Turfgrass Invitational.

The high individual in each of the following areas will be given special recognition certificates:

- General knowledge exam.
- Practicums.
- Team activity.



## Sample Contest Components

### Knowledge Test Topic Areas

- Golf course maintenance history and design
- Soil physics and soil chemistry
- Turfgrass physiology & Breeding
- Water management & Environmental stewardship
- Fertility for golf courses
- Integrated Pest Management
- The Turfgrass Industry and Professional Associations

### Sample Knowledge Test Questions

[Customers mentioned that they had a very bad Crabgrass problem last summer and would like to not have the same problem next year.]

1. What type of chemical should be used for this problem?
  - a. Post emergent herbicide
  - b. Non-selective herbicide
  - c. Pre-emergent herbicide
  - d. Broadleaf herbicide
2. What time of year should this application take place?
  - a. Late Fall
  - b. Late Summer
  - c. Early Spring
  - d. Early Fall
3. Your plan is to apply Dimension 2EW Specialty Herbicide at 1.5 pints/ 43,560ft<sup>2</sup>. The customer's lawn is 27,600 ft<sup>2</sup>. How much product will be needed for this application? (Rounded to the tenth of a fluid ounce)
  - a. 24.1 fl-oz.
  - b. 15.2 fl-oz.
  - c. 19.9 fl-oz.
  - d. 41.3 fl-oz.
4. The product cost \$152.00 for a half gallon bottle. How much will the application cost you? (Round to the nearest dollar)
  - a. \$15
  - b. \$24
  - c. \$36
  - d. \$95
5. Your sprayer is set up to spray 1.5 gallons per 1000 ft<sup>2</sup>. How many gallons of spray solution will be needed for this application? (Round to the nearest gallon)
  - a. 15 gal.
  - b. 27 gal.
  - c. 41 gal.
  - d. 95 gal.

## Sample Case Study Assignment

### Case Study 1 - Best Management Practices (400 team points)

*Students will develop a solution to a case study problem based on turfgrass facility-specific Best Management Practices (BMP's).*

- Each team will be allowed 30 minutes to complete this phase (20 minutes of discussion and planning, 5 minutes for delivery, 5 minutes for questions).
- All team members must participate in the delivery of the proposal.

#### **-Managing Moisture in the Mountains-**

Wayne Harbour Golf Club is located in a sub-tropical rain forest in the mountains of western North Carolina. The average rainfall in this area is between 80 and 100 inches annually. Heavy clay soils that drain poorly are found throughout the golf course and the original drainage system could not handle the excessive annual rainfall. Even small rain events would require closing the golf course for extended periods of time. In such a wet climate, it is essential to improve the golf course for playability and turf health. Your challenge is to develop a 5-minute verbal proposal that outlines the primary challenge, a connection to modern agronomic best management practices, and a discussion illustrating an appropriate solution.

#### **Equipment Required:**

- Large Post-It Sheets
- Markers

#### **Grading:**

Item	Superior Evidence of Success (5-4)	Satisfactory Evidence of Success (3-2)	Unsatisfactory Evidence of Success (1-0)	Multiplier	Points
Outline of Case	Team provides complete insight into process of pulling out the appropriate primary challenge	Team provides insight into process of pulling out the appropriate primary challenge	Team provides little insight into process of pulling out a challenge that may or may not be the primary challenge	x2	
Connection to Industry knowledge	Team is able to connect the challenge to multiple peer reviewed/industry recognized agronomic concepts	Team is able to connect the challenge to peer reviewed/industry recognized agronomic concepts	Team is unable to connect the challenge to any valid peer reviewed/industry recognized agronomic concepts	x2	
Discussion Development	Team is able to describe a concise and complete plan that addresses the primary agronomic challenge	Team is able to describe a plan that addresses the primary agronomic challenge	Team is unable to describe a plan that addresses the primary agronomic challenge and lacks focus/addresses an inappropriate challenge	x2	

Reflection on Case	Team answers post-presentation questions completely with clear indication of preparation	Team answers post-presentation questions adequately with some indication of preparation	Team fails to answer post-presentation questions adequately and there is no indication of preparation	x3	
Professionalism	All team members participate in all phases of the planning and delivery. Presentation exhibits indication of experience with public speaking	Most team members participate in all phases of the planning and delivery. Presentation exhibits some experience with public speaking	Less than half of the team members participate in the planning and delivery. Presentation exhibits little experience with public speaking		
				Total	

## Sample Practicum

(20 minutes)

### Turfgrass Identification (50 points, 200 team points)

*Participants will demonstrate efficient and accurate identification of warm season turfgrass, cool season turfgrass, and native plant types based on prepared knowledge.*

- Each participant will be allowed 20 minutes to complete this phase.
  - All specimens will be set out on tables for review.
  - Participants will rotate through each station at their own pace.
  - Participants will be allowed to study the specimen with magnifying glass and may use forceps to manipulate a small sample of the specimen to inspect specific plant parts.
  - Participants will need to rotate through and identify all specimens by the conclusion of the 20 minutes.
- All tools and resources required for the practicum will be at the site.
- The use of cell phones for this practicum will not be allowed

### **-Identify various types of plant materials found on a turfgrass system-**

For thousands of years, turfgrasses have been used as low growing groundcover with cultural, strategic, and sporting value. Modern turfgrass varieties have a myriad of uses including and not limited to the protection of the playing surface for sports. From construction to maintenance, selecting the best suited and appropriate grass for a specific area on the athletic field is both a complicated and essential duty for a builder. Selecting the right turfgrass can save a field manager countless hours of labor and significant amounts of money on inputs. Your challenge will be to identify warm-season, cool-season, and native turfgrass species.

### **Equipment Required:**

- Magnifying glass



- Forceps
- Recording card

**Grading:**

Item	% of Practicum	Multiplier	Points
Identification of Warm Season Grass	40	x2	
Identification of Cool Season Grass	40	x2	
Identification of Native Plant Species	20		
<b>Total</b>			

**References**

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. Use discretion when selecting website references by only using reputable, proven sites. The following list contains references that may prove helpful during event preparation. The most current edition of resources will be used.

**Knowledge Test**

- Archived Knowledge Test (2025)
- Turgeon and Kaminski (2019). Turfgrass Management (Current Edition)
- Christians and Agnew (2008). The Mathematics of Turfgrass Maintenance (Fourth Edition).
- Emmons and Rossi (2015). Turfgrass Science and Management (Fifth Edition).
- Puhalla, Krans, and Goatley (2010). Sports Fields: Design, Construction, and Maintenance.
- Walker (2009). The Field Guide: The Layout and Dimensions of Sports Fields.
- Smiley, Dernoeden, and Clarke (2005) Compendium of Turfgrass Diseases (Third Edition)
- Uva, Neal, and DiTomaso (1997). Weeds of the Northeast.
- Brandenburg and Villani (1995). Handbook of Turfgrass Insect Pests.
- Penn State Center for Turfgrass Science - Resources on Professional Turfgrass Management - <https://plantscience.psu.edu/research/centers/turf/extension/professional-turf>



## Turfgrass Identification

- Penn State Center for Turfgrass Science - Plant ID - <https://plantscience.psu.edu/research/centers/turf/extension/plant-id>
- NC State Extension Publications - ID
- <https://content.ces.ncsu.edu/weed-identification-in-pastures-hayfields-and-sprayfield>

## Practicum References

- Practicum 1
  - <https://www.youtube.com/watch?v=YR4TWnhQFYs>
  - <https://sportsfieldmanagementonline.com/2020/07/29/five-keys-to-field-stencils/11794/>
  - <https://sportsfieldmanagementonline.com/2009/05/26/logo-and-other-field-painting-tips-from-a-top-pro/5096/>
- Practicum 2
  - [https://www.sportsfieldmanagement.org/wp-content/uploads/2017/11/Field\\_Hardness-FINAL-2.pdf](https://www.sportsfieldmanagement.org/wp-content/uploads/2017/11/Field_Hardness-FINAL-2.pdf)
  - <https://www.youtube.com/watch?v=8Q9GK9cl7B8>
- Practicum 3
  - [https://www.youtube.com/watch?v=yUEzOpZdg\\_4](https://www.youtube.com/watch?v=yUEzOpZdg_4)
- Practicum 4
  - <https://www.youtube.com/watch?v=em1ev83pW7k&t=238s>
  - <https://www.hunterirrigation.com/support/sj-swing-joint-installation>
- Practicum 5
  - <https://www.sportsfieldmanagement.org/wp-content/uploads/2017/11/Boom-Sprayer-Calibration-FINAL.pdf>
  - <https://www.youtube.com/watch?v=poesaVUL1x>
- Practicum 6
  - <https://extension.psu.edu/the-cool-season-turfgrasses-identification>
  - <https://aggieturf.tamu.edu/texas-turfgrasses/>
- Practicum 7
  - [https://www.standardgolf.com/equipment/greens/maintenance-turf/?srsltid=AfmBOorkZm50DMSrBSv-hTGqVaVsxB0\\_5Qikf87Sr6Fp9nlJHFk0wVZ\\_](https://www.standardgolf.com/equipment/greens/maintenance-turf/?srsltid=AfmBOorkZm50DMSrBSv-hTGqVaVsxB0_5Qikf87Sr6Fp9nlJHFk0wVZ_)
  - <https://1stproducts.com/blog/how-to-build-the-ultimate-turf-management-equipment-setup/>
  - <https://sturf.lib.msu.edu/article/2011dec32a.pdf>

- Practicum 8
  - <https://turf.cals.cornell.edu/pests-and-weeds/insect-management/>
  - <https://extension.entm.purdue.edu/publications/E-61.pdf>
  - <https://turfpathology.ces.ncsu.edu/turfgrass-diseases/>
  - <https://buckeyeturf.osu.edu/TurfWeedID>
  - <https://www.tnturfgrassweeds.org/factsheets>
  
- Practicum 9 [Alternate]
  - [https://www.sportsfieldmanagement.org/knowledge\\_center/sports-field-dimensions/](https://www.sportsfieldmanagement.org/knowledge_center/sports-field-dimensions/)
  - [https://www.youtube.com/watch?v=WSiH1J\\_y1f4](https://www.youtube.com/watch?v=WSiH1J_y1f4)

## Turfgrass Identification List

### Live Samples

1. Creeping Bentgrass (*Argrostis palustris*)
2. Velvet Bentgrass (*Agrostis canina*)
3. Kentucky Bluegrass (*Poa pratensis*)
4. Rough Bluegrass (*Poa trivialis*)
5. Annual Bluegrass (*Poa annua*)
6. Perennial Ryegrass (*Lolium perenne*)
7. Annual Ryegrass aka. Italian Ryegrass (*Lolium multiflorum*)
8. Tall Fescue (*Festuca arundinacea*)
9. Fine Fescue (includes: *Festuca rubra ssp. rubra*, *Festuca rubra ssp. Cumnutata*)
10. Common Bermudagrass (*Cynodon dactylon*)
11. Hybrid Bermudagrass (*Cynodon dactylon* x *Cynodon transvaalensis*)
12. African Bermudagrass (*Cynodon transvaalensis*)
13. Buffalograss (*Bouteloua dactyloides*)
14. Centipedegrass (*Eremochloa ophiuroides*)
15. St. Augustinegrass (*Stenotaphrum secundatum*)
16. Seashore Paspalum (*Paspalum vaginatum*)
17. Zoysiagrass (*Zoysia japonica*)
18. Kikuyugrass (*Pennisetum clandestinum*)

### Seeds

1. Creeping Bentgrass (*Argrostis palustris*)
2. Kentucky Bluegrass (*Poa pratensis*)
3. Perennial Ryegrass (*Lolium perenne*)
4. Annual Ryegrass aka. Italian Ryegrass (*Lolium multiflorum*)
5. Tall Fescue (*Festuca arundinacea*)
6. Fine Fescue (includes: *Festuca rubra ssp. rubra*, *Festuca rubra ssp. Cumnutata*)
7. Common Bermudagrass (*Cynodon dactylon*)
8. Seashore Paspalum (*Paspalum vaginatum*)
9. Buffalograss (*Bouteloua dactyloides*)
10. Centipedegrass (*Eremochloa ophiuroides*)



## Sod

1. Hybrid Bermudagrass (*Cynodon dactylon* x *Cynodon transvaalensis*)
2. Centipedegrass (*Eremochloa ophiuroides*)
3. St. Augustinegrass (*Stenotaphrum secundatum*)
4. Seashore Paspalum (*Paspalum vaginatum*)
5. Zoysiagrass (*Zoysia japonica*)
6. Kikuyugrass (*Pennisetum clandestinum*)
7. Velvet Bentgrass (*Agrostis canina*)
8. Kentucky Bluegrass (*Poa pratensis*)
9. Rough Bluegrass (*Poa trivialis*)
10. Annual Bluegrass (*Poa annua*)
11. Perennial Ryegrass (*Lolium perenne*)
12. Annual Ryegrass (*Lolium multiflorum*)
13. Tall Fescue (*Festuca arundinacea*)
14. Fine Fescue (*Festuca rubra*)

## Equipment Identification List

### Mower Parts

1. Air Filter
2. Fuel Filter
3. Fuel Tank
4. Hydraulic Filter
5. Hydraulic Line
6. Hydraulic Pump
7. Hydraulic Reservoir
8. Oil Filter
9. Reel Mower HOC Gauge/Accu-Gage
10. Reel Mower Components
  - a. Spider
  - b. Reel cylinder
  - c. Reel blade
  - d. Shaft
  - e. Bedbar
  - f. Bedknife
  - g. Bedknife adjuster
  - h. Roller
  - i. Roller adjuster
  - j. Rotary Mower Components
    - i. Mulching blades
    - ii. Bench grinder
    - iii. Balancer

### Irrigation Parts

1. Diaphragm Pump

### Tools

1. Broom
2. Grader/Laser Level

3. Painter
4. Tamp
5. Transit
6. Trimmer - Line trimmer
7. Trimmer - Hedge
8. York Rake
9. Sod knife
10. Shovel

### Small Equipment

1. Backpack Blower
2. Edger
3. Fertilizer Spreader
  - a. Drop
  - b. Rotary
4. Sod cutter
5. Soil Probe
6. Backpack Sprayer

### Large Equipment

1. Aeration Equipment
  - a. Air Injection
  - b. Deep Drill
  - c. Fraise Mower
  - d. Hollow tines
  - e. Hollow tine aerator
  - f. Solid tines
  - g. Solid tine aerator
  - h. Spiker/Slicer
  - i. Vertical Mower/Verticutter
  - j. Water Injection

2. Drag Mat
3. Tractor Mounted Spreader
4. Front End Loader
5. Groomer
6. Mowers
  - a. Flail
  - b. Reel
  - c. Rotary
7. Roller
8. Seeder
9. Skid-Steer
10. Boom Sprayer
11. Sweeper
12. Topdresser
13. Tractor
14. Trencher
15. Utility Vehicle

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## Input Identification List

### Soil

1. Brick Dust
2. Calcined Clay
3. Clay Rootzone
4. Compost
5. Crumb Rubber
6. Diatomaceous Earth
7. Drainage Stone
  - a. Pea gravel
8. Expanded Shale
9. Infield Mix
10. Limestone
11. Mound Clay
12. Native Soil Rootzone
  - a. Heavy clay
  - b. Loam
13. Peat
14. Sand
  - a. Topdressing Sand
  - b. Sand Rootzone
  - c. Silica sand
15. Topsoil
16. Vitrified Clay
17. Warning Track Material
18. Zeolite

### Fertilizer

1. Ammonium sulfate
2. Urea
3. Superphosphate
4. Potassium chloride

5. Potassium nitrate

6. Potassium sulfate

### Pesticide Label

#### [herbicides]

1. 2,4-D
2. Benfluralin
3. Clopyralid
4. Dicamba
5. Diquat Dibromide
6. Dithiopyr
7. Glyphosate
8. Isoxaben
9. Triclopyr

#### Insecticides

10. Bifenthrin
11. Carbaryl
12. Fipronil
13. Imidacloprid
14. Permethrin
15. Trichlorfon

#### Fungicides

16. Azoxystrobin
17. Myclobutanil
18. Propiconazole
19. Sulfur
20. Thiophanate methyl

## IPM Identification List

### Diseases

1. Anthracnose
2. Brown Patch
3. Dollar Spot
4. Fairy Ring
5. Gray Leaf Spot
6. Gray Snow Mold
7. Helminthosporium Leaf Spot
8. Large patch
9. Necrotic Ring Spot
10. Nematodes
11. Pink Snow Mold
12. Powdery Mildew
13. Pythium Blight
14. Red Thread
15. Rust
16. Spring Dead Spot
17. Summer Patch
18. Take-all Patch

### Insects

1. Annual Bluegrass Weevil
2. Armyworms
3. Asiatic Garden Beetle
4. Black Turfgrass Ataenius Beetle
5. Bluegrass Billbugs
6. Chinchbugs
7. Cutworms
8. Fall Armyworm
9. Fire Ants
10. Green June Beetle
11. Japanese Beetle
12. May and June Beetles
13. Masked Chafer
14. Mites
15. Mole Crickets
16. Oriental Beetle
17. Sod Webworms
18. White Grubs

### Weeds

[cool-season]

1. Annual Bluegrass (*Poa annua*)
21. Barnyardgrass (*Echinochloa crusgalli*)
22. Bentgrass (*Agrostis sp.*)
23. Crabgrass (*Digitaria Sp.*)

24. Foxtail (*Setaria sp.*)
25. Goosegrass (*Eleusine indica*)
26. Nimblewill (*Muhlenbergia scherberi*)
27. Orchardgrass (*Dactylis glomerata*)
28. Quackgrass (*Agropyron repens*)
29. Tall Fescue (*Festuca arundinacea*)
30. Yellow Nutsedge (*Cyperus esculentus*)
31. (purple) Nutsedge (*Cyperus rotundus*)
32. Wild Garlic/Onion (*Allium vineale*)
33. Black Medic (*Medicago lupulina*)
34. Broadleaf Plantain (*Plantago rugelii and P. major*)
35. Buckhorn Plantain (*Plantago lanceolata*)
36. Bull Thistle (*Cirsium vulgare*)
37. Canada Thistle (*Cirsium arvense*)
38. Carpetweed (*Mollugo verticillata*)
39. Common Chickweed (*Stellaria media*)
40. Mouseear Chickweed (*Cerastium vulgatum*)
41. Curly dock (*Rumex crispus*)
42. Dandelion (*Taraxacum officinale*)
43. Ground Ivy (*Glechoma hederacea*)
44. Common groundsel (*Oxalis montana*)
45. Yellow/Orange Hawkweed (*Hieracium pratense H. aurantiacum*)
46. Healall (*Prunella vulgaris*)
47. Henbit (*Lamium amplexicaule*)
48. Japanese stiltgrass (*Microstegium vimineum*)
49. Knotweed (*Polygonum aviculare*)
50. Mallow (*Malva neglecta*)
51. Mullien (*Verbascum thapsus*)
52. Pennywort (Dollarweed) (*Hydrocotyle sp.*)
53. Purslane (*Portulaca oleracea*)
54. Rough Bluegrass (*Poa trivialis*)
55. Sheep Sorrel (*Rumex acetosella*)
56. Shepherds purse (*Capsella bursa-pastoris*)
57. Creeping Speedwell (*Veronica filiformis, V. Officinalis, V. serpyllifolia*)
58. Corn Speedwell (*Veronica arvensis*)

59. Spurge (*Euphorbia maculata* & *E. supina*)
  60. Velvetgrass (*Holcus lanatus*)
  61. White Clover (*Trifolium repens*)
  62. Wild Carrot (*Daucus carota*)
  63. Yellow Woodsorrel (*Oxalis stricta*)
  64. Yarrow (*Achillea millefolium*)
  65. Yellow Rocket (*Barbarea vulgaris*)
- [Warm-season]
66. Bermudagrass (*Cynodon dactylon*)
  67. Crabgrass (*Digitaria Sp.*)
  68. Common Chickweed (*Stellaria media*)
  69. Mouseear Chickweed (*Cerastium vulgatum*)
  70. Green Kyllinga (*Kyllinga brevifolia*)
  71. Spurge (*Euphorbia maculata* & *E. supina*)
  72. Dogfennel (*Eupatorium capillifolium*)
  73. Bahiagrass (*Paspalum notatum*)
  74. Goosegrass (*Eleusine indica*)
  75. Foxtail (*Alopecurus pratensis*)
  76. Yellow Nutsedge (*Cyperus esculentus*)

NTSISI 2020



## Turf Management and Related Careers

### CAREER OPPORTUNITY

#### Career Clusters

- Agriculture, Food & Natural Resources
- Business Management & Administration
- Marketing
- Finance
- Science Technology, Engineering & Mathematics
- Education & Training

### CAREER OPPORTUNITY FOUND IN THE CAREER CLUSTERS

#### Agricultural, Food & Natural Resources

- Greenkeeper
- Landscaper
- Sod Production Specialist

#### Marketing

- Landscape Contractor
- Turf Product Sales
- Equipment Sales

#### Finance

- Lawn and Turf Care Services

#### Science Technology, Engineering & Mathematics

- Plant Taxonomist
- Turfgrass Research Technicians

#### Education & Training

- Landscape Photographer
- Postsecondary Educator

### SUPERVISED AGRICULTURAL EXPERIENCE OPPORTUNITIES

- Employment at a golf course
- Employment at a lawn care business
- Open own business in lawn care
- Employment at a sod/turf farm

### EDUCATIONAL REQUIREMENTS /OPPORTUNITIES

Associate Degree and/or industry training

- Landscaper
- Home Lawn Maintenance

#### Bachelor's Degree

- Greenkeeper
- Landscape Contractor
- Graduate Degree
- Plant Ecologist
- Plant Taxonomist
- Postsecondary Educator

### PROFICIENCY AWARD AREAS

- Turfgrass Management
- Agriculture Sales and/or Services
- Diversified Horticulture