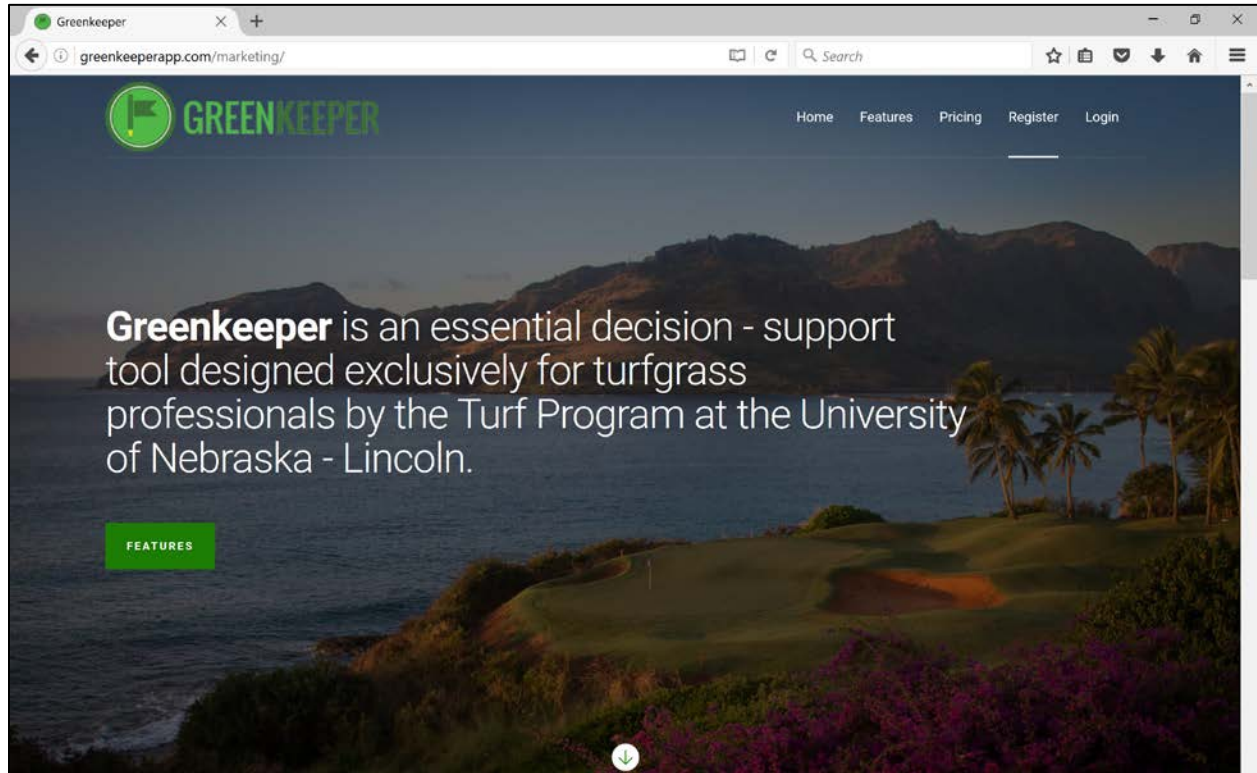


# GreenKeeper App User Guide

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Welcome to GreenKeeper App. This web-based application is a decision support tool designed by the turf experts at the University of Nebraska-Lincoln. It was built to run within the internet browser on your desktop, laptop, tablet or mobile device. You do not need to download anything to use GreenKeeper. Simply head to [www.GreenKeeperApp.com](http://www.GreenKeeperApp.com) to access your course. GreenKeeper is located securely in the cloud, which allows you and other employees at your facility to access the data across many devices. Your privacy is extremely important to us. We will never sell your individual use data and your course is secured behind a 128-bit encryption. Please visit our [End User License Agreement](#) and [Privacy Policy](#) to learn more.



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***While GreenKeeper App scales across different devices, we find it is easiest to setup your course on a computer the first time compared to a phone or tablet. View GreenKeeper Tutorials at [YouTube.com/UNLTurf](https://www.youtube.com/UNLTurf) for more help.***


## 2. Registration and Login

GreenKeeper is a free web-based application “web-app.” To register, simply click the register button and enter your first and last name, email, and a password. We recommend you use a password with numbers, symbols, and both upper and lower-case letters to maximize security.


### User Tips

Be sure to double check your email address is correct! GreenKeeper will accept any email address containing the '@' symbol, even if it is email address is incorrect. Several users have issues logging in because they had a typo in the email address.

After entering your name, email, and password, click the “+Create Account” button. **This *WILL NOT* log you into GreenKeeper.** This only establishes your user account. Instead, you will be redirected to the Login page. This occurs so you can login and check the ‘Remember Me?’ box to bypass the login page in the future.

To login to your account, enter the email address and password you defined on the registration page. You’re encouraged to check the ‘Remember Me?’ box before pushing the  button. By selecting the ‘Remember Me?’ box, you will bypass the login page when you type [www.GreenKeeperApp.com](http://www.GreenKeeperApp.com) into your web browser. We also recommend bookmarking the site for quick access in the future. Adding a bookmark to your mobile device home screen will further expedite access to the website and roughly mirror the other apps on your device.

### User Tips

Forgot your password? Click the  icon in the upper right-hand corner of the login dialog box. You’ll be prompted to enter your email address and you’ll receive an email with a new password. Remember to then change your password once you’ve logged into GreenKeeper. If it doesn’t recognize your email address, then you likely had a typo in your email address during registration. Please re-register or email me with the link below, [GreenKeeperApp@unl.edu](mailto:GreenKeeperApp@unl.edu).

### 3. Setting up Your Course

The first time you log in, GreenKeeper will prompt you to setup your course's location, areas, sprayers and product inventory. Once entered, you will automatically be directed to your course's homepage. **Setting up the course location correctly is essential to maximize the benefits of GreenKeeper, such as GDD tracking of plant growth regulators.**

#### 3.1 Locations and Weather Stations

GreenKeeper uses Weather Underground to access past, current, and forecasted weather data. Defining an accurate course location is required to get the most accurate weather data to drive the PGR and disease models.

To set the course location, click the 'My Course' button on the homepage or in the dropdown menu located on the upper right corner of any GreenKeeper page. On the 'My Course' page, you'll see your first and last name and email in the 'COURSE INFO' dialog box. **Be sure there are not typos in your email address.** Below the 'USER INFO' box you'll find the 'COURSE INFO' box. Enter the name of the course, the type (public or private), the number of holes, and the ZIP or Postal code.

To define the course's location, zoom in on the map to your facility and click the location on the map. A white flag with yellow background will appear on the map. To position it somewhere else, just click the new location. **Remember to push save after selecting the location to lock it in our database.** Many users have added a small personal weather station (PWS) to their course. That station is then submitting real-time data to Weather Underground. GreenKeeper can access this data to drive the PGR and disease models. If you have a PWS on your course, be sure the course location flag is as close to your PWS on the map. The site will automatically default to that location and will use the next nearest location if your PWS were to stop reporting.

COURSE INFO

Kreuser Golf Club

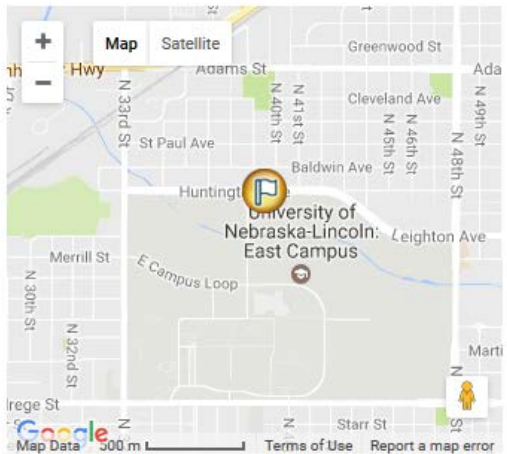
PRIVATE

18+

68583

#### Course Location

Click to select course location. To use Personal Weather Station data, click the coordinates of your PWS



Save

### ***Adding a PWS to your facility***


Weather Underground personal weather stations are affordable and very easy to install. For best GreenKeeper App results, consider installing a PWS at your facility. Stations generally cost less than \$400 and link real-time to Wunderground. When purchasing a PWS, make sure it has the ability to log solar intensity (required for evapotranspiration calculation) and is compatible with Wunderground. Information on compatible stations can be found here:

<https://www.wunderground.com/weatherstation/buyingguide.asp>

## 3.2 Defining Management Areas

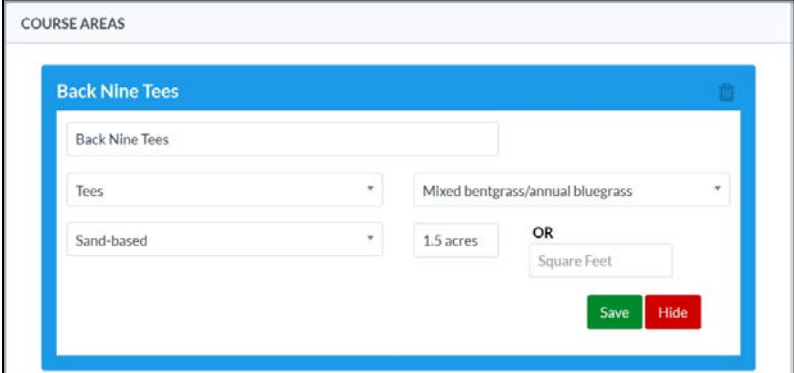
After defining the location, use the 'My Course' page to add different management areas to GreenKeeper. Management area classifications include Greens, Tees, Fairways and Roughs. It is best to use the Rough classification for athletic fields and other tall mowed turf. Group management areas as you would maintain them. For example, group Greens and Approaches together if they are always treated together. Users can also add more than one classification area to a course. For example, if some greens are newer USGA spec and the other greens are older push up, then you may want to add them separately. Only do this if you do not spray them together and truly manage those greens differently.

To add a new management area, click the  button to reveal the 'New Area' menu.

- 1) **Name the area** – Greens can simply be called greens or something more specific.
- 2) **Select area type** – This is important for PGR models and future features.
- 3) **Soil type** – 'Native soil – course texture' for soils high in sand, 'Native soil - fine texture' for soils high in silt and clay, 'Sand-Modified Native' for pushup or sand capped soils, and 'Sand-based' for USGA and California style root zones.
- 4) **Grass species** – Important for PGR models and future features.
- 5) **Area size** – Size of an area in either square feet or acres.
- 6) **Be sure to push the  button and confirm it has been saved correctly**


### User Tips

When defining the area size, it can be helpful to added excess square footage to account for over-lap and over-spray. For example, if you have 160,000 ft<sup>2</sup> of greens but you know it takes enough mix to spray 180,000 ft<sup>2</sup> to cover the area, then enter 180,000 ft<sup>2</sup>. Additionally, if you always plan to spray two full tanks to cover an area, then calculate how many square feet or acres two tanks should cover. For example, two full sprayer loads (160 gallons each) typically treats greens and approaches at 80 gal/1000 ft<sup>2</sup>. Then define Greens & Approaches at 4.0 acres.

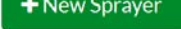


To edit a management area, click the area name to open full menu. To delete an area, click the trash can icon in the top right corner of the menu. **Warning, deleting a management area will also remove all past applications made to that area. We do not recommend deleting a management area.**

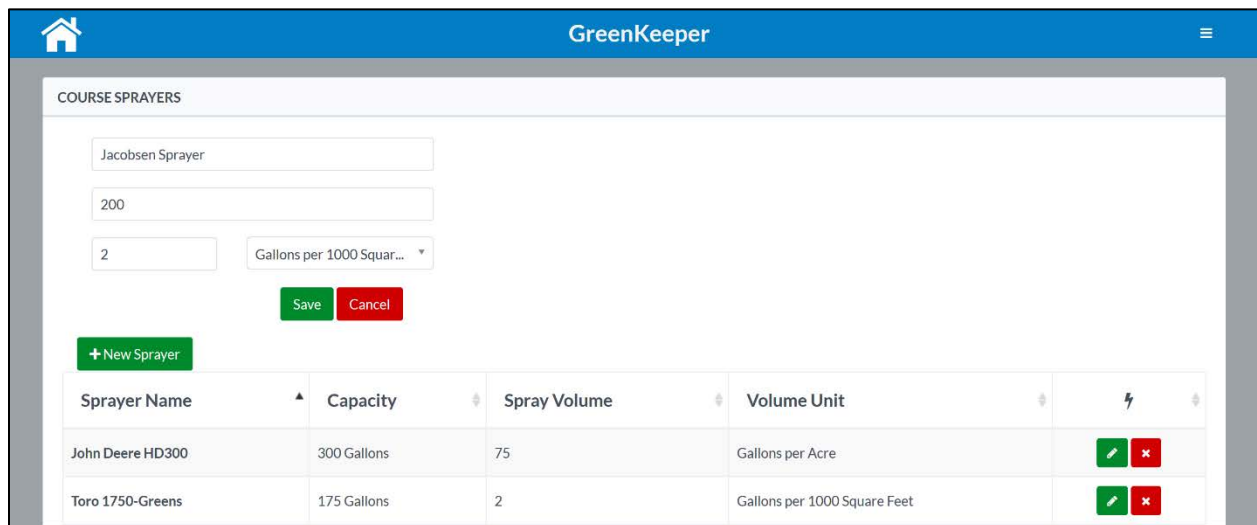
## 4. Defining Sprayers

The next step during first time setup is to define your sprayers on the 'Manage Sprayer' page. You can always navigate to the 'Manage Sprayer' page from the dropdown menu on the top right corner of the GreenKeeper page. The menu icon looks like three horizontal lines .





To add a new sprayer:

- 1) Click the 'Add New Sprayer' button. 
- 2) Name the sprayer.
- 3) Enter the sprayer tank capacity in gallons.
- 4) Enter the sprayer calibration and the units of measure (either gallons per acre or gallons per 1000 square feet).
- 5) Push save and verify it saved successfully.

The sprayers will then be displayed in the Sprayer Table. To edit an existing sprayer, click the green pencil button after the sprayer you plan to edit. To remove a sprayer, simply push the red 'X' button.





The screenshot shows the 'GreenKeeper' app interface. At the top, there is a blue header with a home icon, the text 'GreenKeeper', and a menu icon. Below the header is a section titled 'COURSE SPRAYERS'. This section contains a form with the following fields: 'Sprayer Name' (containing 'Jacobsen Sprayer'), 'Capacity' (containing '200'), and 'Spray Volume' (containing '2'). The 'Volume Unit' is set to 'Gallons per 1000 Squar...'. Below the form are 'Save' and 'Cancel' buttons, and a '+ New Sprayer' button. Below the form is a table with the following data:

Sprayer Name	Capacity	Spray Volume	Volume Unit	
John Deere HD300	300 Gallons	75	Gallons per Acre	 
Toro 1750-Greens	175 Gallons	2	Gallons per 1000 Square Feet	 

### User Tips

Some course only use one sprayer but might have different nozzles for different areas or different products (i.e. contact vs. systemic fungicides). Others may only fill the sprayer tank half-way for certain areas (i.e. fairways vs greens). Although you may only have one sprayer, simply enter the different configurations into GreenKeeper and label them appropriately. For example, label one configuration 'Greens and Tees Config.' and have it calibrated to 2.0 gallons per 1000 square feet and 150 gallon capacity. Then add another configuration called 'Fairways Config.' with nozzles for 60 gallons per acre and capacity of 300 gallons.



## 5. Inventory Management

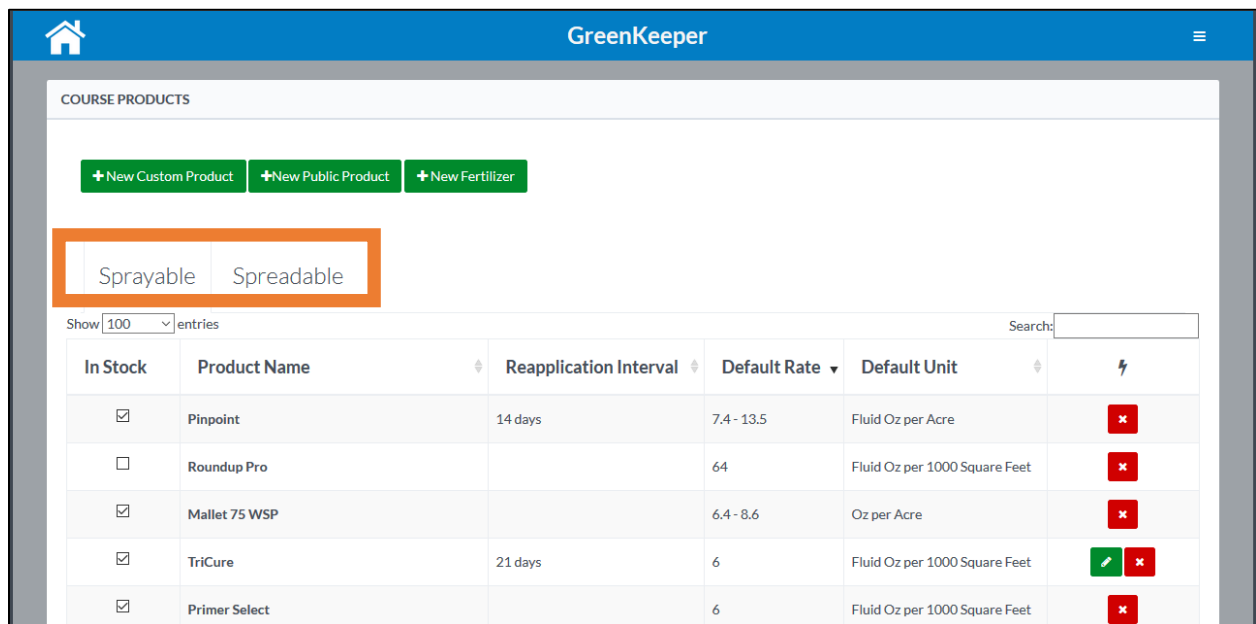
The inventory manager page contains a list of all the products and fertilizers that you use at your facility. It is also the last of the first time set-up steps. It can be accessed from the menu icon  in the top right corner of GreenKeeper and by pushing the  button on the homepage.

### 5.1 Sprayable vs Spreadable Product Lists







The inventory page is comprised of two different inventory lists. The first is the ‘Sprayable’ product list. This list contains products that are applied with a sprayer including liquid products and fertilizers and dry (soluble) products that can be dissolved into a sprayer (i.e. urea fertilizer or water-soluble pesticides).

The ‘Spreadable’ product list is for products that would be applied with a granular spreader (drop, rotary, etc.). These granular products typically include fertilizers, combination fertilizers with pesticides (i.e. Ween-n-Feed) and other granular pesticides or surfactants.

To switch between the two lists, click the ‘Sprayable’ or ‘Spreadable’ tabs (highlighted in the orange box below). You can search for products with the search bar in the right corner of the product list and sort products by name, application interval, rate, or unit. When an item is out of stock, de-select the ‘In Stock’ check box. This will prevent out of stock products from appearing on the ‘New Application’ page. The  icon allows you to edit attributes of custom entered product or fertilizer while the  icon will remove a product from your inventory. Public products cannot be edited, email us to fix any product errors.



The screenshot shows the 'COURSE PRODUCTS' section of the GreenKeeper app. At the top, there are three green buttons: '+ New Custom Product', '+ New Public Product', and '+ New Fertilizer'. Below these are two tabs: 'Sprayable' and 'Spreadable', with 'Sprayable' selected and highlighted by an orange box. Under the tabs, there is a search bar and a 'Show 100 entries' dropdown. The main content is a table with the following columns: 'In Stock', 'Product Name', 'Reapplication Interval', 'Default Rate', 'Default Unit', and an action column with icons. The table contains five rows of product data.

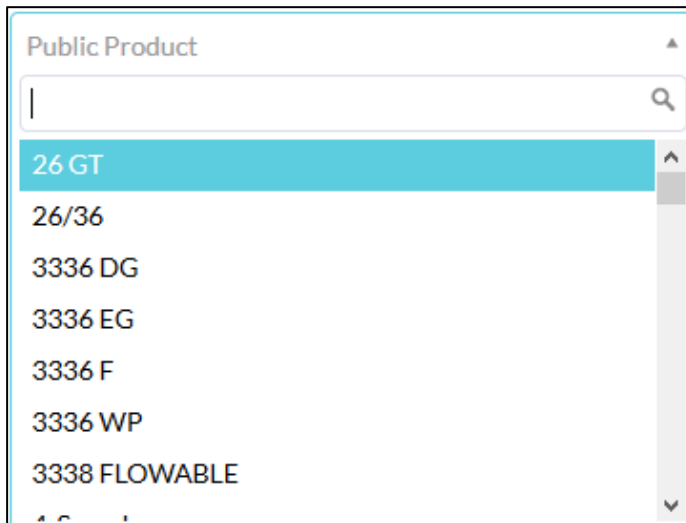
In Stock	Product Name	Reapplication Interval	Default Rate	Default Unit	Action
<input checked="" type="checkbox"/>	Pinpoint	14 days	7.4 - 13.5	Fluid Oz per Acre	
<input type="checkbox"/>	Roundup Pro		64	Fluid Oz per 1000 Square Feet	
<input checked="" type="checkbox"/>	Mallet 75 WSP		6.4 - 8.6	Oz per Acre	
<input checked="" type="checkbox"/>	TriCure	21 days	6	Fluid Oz per 1000 Square Feet	 
<input checked="" type="checkbox"/>	Primer Select		6	Fluid Oz per 1000 Square Feet	



**5.2 Adding a Public Product or Fertilizer**

The GreenKeeper App database contains several hundred ‘public’ products. The public products can be quickly used by all users. They already have their name, form (liquid, soluble, granular), rate range, and typical re-application interval stored in the GreenKeeper database. They also have the fertilizer analysis, active ingredients, and pests controlled in the database.

It is most efficient to use public products whenever possible. Please note, other users do not know if you use these products. Your specific product database is confidential to specific a course and the users with access to that course within GreenKeeper.



To add a ‘Public Product,’ click the **+New Public Product** button to reveal the list of publically available products stored in GreenKeeper. There are several hundred products in the database, so it is easiest to start typing the name of the product in the search bar to locate the product you want to add to your course inventory.


Once you’ve select the correct product, push the **Add Product** button to save it to your inventory. Please note there may be several different formulations available for a particular product trade name. For example, there are four formulations of Cleary’s 3336 in the database. Be sure to select the correct formation for accuracy.

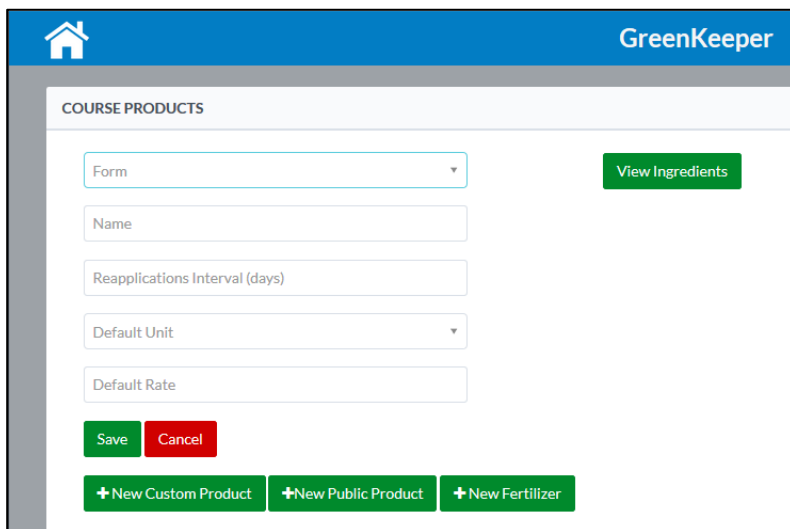
Once saved, products will appear in either the ‘Sprayable’ or ‘Spreadable’ inventory. The products in the public database cannot be edited by individual users. If you find an error with a product, please email us at [GreenKeeperApp@unl.edu](mailto:GreenKeeperApp@unl.edu) to get it fixed immediately.

## 5.3 Adding a Custom Product

We work hard to make sure that our ‘Public Product’ database is up to date. Still, newly released and generic products can sometimes be missing from our public database. In those instances, users can enter ‘custom’ products. Custom products are specific to a particular golf course or facility within GreenKeeper. Other users will not see these products.

*Note: Fertilizers or combo products with both fertilizer and a control product should not be entered as a ‘New Custom Product’ but as a ‘New Fertilizer.’ Many fertilizer and combo products already exist in the ‘Public Product’ database.*

To add a custom product to your facility’s inventory, click the  icon to reveal the custom product window. You will then need to enter the following information about that product:



1) **Form of the product:** The options are liquid, soluble, or granular. This is important because it determines which inventory list to place the product. It also tell GreenKeeper if the product should be sprayed or spread. Products with a liquid or soluble form will be designated to be sprayed while granular products will be designated to be applied with a spreader.

- 2) **Product Name:** Enter the name of the product. Some users also add regulatory information like an EPA Registration number for quick reference. Do not put anything in parentheses, however, because it will be ignored by the system.
- 3) **Re-application Interval:** This provides a point of reference when setting up a new application. It is not binding and can be easily changed when setting up a new application. The interval should be in calendar days only.

*Note: Entering an interval of zero ‘0’ will prevent the product from displaying a re-application interval. This is helpful for products that are not frequently re-applied.*

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- 4) **Default Unit:** Select the default unit for the product. These can also be changed when entering a new application. Units are only US/English for now.
- 5) **Default Rate:** This provides a point of reference when setting up a new application. This rate is not binding and can be easily changed when setting up a new application.
- 6) **Add active ingredients:** Push the **View Ingredients** button to add the active ingredients to the custom product. This will aid in reporting and improve rotation management and other pesticide calculations in the future.

COURSE PRODUCTS

Liquid

Name

Reapplications Interval (days)

Default Unit

Default Rate

Save Cancel

Active Ingredient 1

% of Product Weight

Lbs Per Gallon

N/A

1,3-dichloropropene

2,4-D

2,4-DP

acephate

atrazine

azoxystrobin


Select the active ingredient from the drop down menu. To quickly search the active ingredient list, use the search bar to rapidly find the A.I. of interest. Selecting an ingredient will cause a secondary active ingredient line to appear for additional ingredients. If there is only one A.I. in your custom product, then leave that second line blank. Selecting an A.I. will also allow you to enter the percentage of A.I. and pounds of A.I. per gallon (for liquid products). These values can be found on the front of a product label if the product has an EPA registration number.

- 7) **Save the Custom Product** by pushing the **Save** button.

## 5.4 Adding a Custom Fertilizer or Combination Product

GreenKeeper can also perform fertilizer calculations for granular, soluble, and even liquid products. Active ingredients can also be added to fertilizer products. This is helpful for fertilizers that also control pests (i.e. herbicides, insecticide, or fertilizers). Cumulative fertilizer application records for each nutrient and management area will then be displayed on your course's homepage (under development during writing).

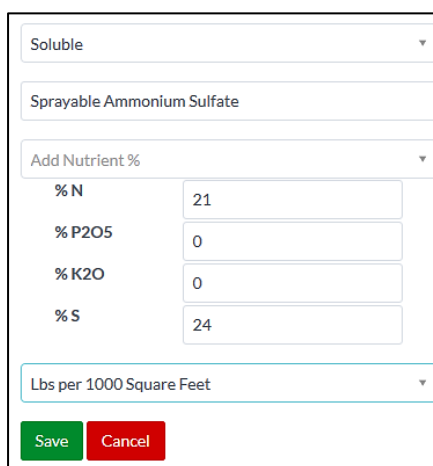
To add a custom fertilizer or combination product:

- 1) **Click** the  button on the Course Product inventory page in GreenKeeper to reveal the new custom fertilizer menu.
- 2) **Form of the product:** The options are liquid, soluble, or granular. This is important because it determines which inventory list to place the product. It also tell GreenKeeper if the product should be sprayed or spread. Products with a liquid or soluble form will be designated to be sprayed while granular products will be designated to be applied with a spreader.
- 3) **Product Name:** Enter the name of the product. Some users also add regulatory information like an EPA Reg. # for reference when applicable. Do not put anything in parentheses because the system will automatically put the N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O analysis in parenthesis behind the name of the fertilizer.
- 4) **Add Nutrients:** Nitrogen, phosphorus (as P<sub>2</sub>O<sub>5</sub>), and potassium (as K<sub>2</sub>O) are displayed for all custom fertilizer applications. Secondary nutrients and micronutrients can also be added to by selecting the different nutrients from the dropdown menu labeled "Add Nutrient %." Secondary and micronutrient fields will then propagate individually below the % N, % P<sub>2</sub>O<sub>5</sub>, and % K<sub>2</sub>O. To add another secondary or micronutrient, click the dropdown menu and select the other nutrients.

### User Tips

The 'Public Product' database also contains some fertilizers and fertilizer combination products. While this list is less complete than the stand-alone products, we are working with several manufactures to add more fertilizers/combos to our public database. Many ag-grade fertilizers are already in the 'Public Product' database.

**Be sure to check the public database for your favorite fertilizer/combo product first.**



Soluble	
Sprayable Ammonium Sulfate	
Add Nutrient %	
% N	21
% P <sub>2</sub> O <sub>5</sub>	0
% K <sub>2</sub> O	0
% S	24
Lbs per 1000 Square Feet	
Save	Cancel

Enter the fertilizer analysis in whole numbers. **Do not include the “%” logo after the number.** For example, sprayable ammonium sulfate has 21% N, 0% P<sub>2</sub>O<sub>5</sub>, 0% K<sub>2</sub>O, and 24% S by weight (expressed 21-0-0 on the bag). That fertilizer would be entered as shown above.

- 5) **Container Weight and Volume (liquids only):** Liquid fertilizers require some additional information to calculate fertilizer density. It is impossible to convert from liquid units (gallons or fl oz per 1000 square feet) to fertilizer weight units (lbs per 1000 square feet) without calculating fertilizer density. To accomplish this, you'll need to enter the weight of the fertilizer container in pounds and size of the liquid fertilizer container in gallons.

Let's use the label from Gary's Green fertilizer by Grigg Bros. to demonstrate the correct way to add a liquid fertilizer to your inventory. *Please note Gary's Green is already in the 'Public Product' database and does not need to be entered as a custom fertilizer.*

Locate the nutrient levels (red box), the weight and volume of the container (blue box) and the unit of measure (purple box).

**Proven Foliar™**

**GARY'S GREEN®**

**18-3-4+Iron**

<div style="border: 2px solid red; padding: 5px;"> <p style="text-align: center; margin: 0;"><b>GUARANTEED ANALYSIS</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Total Nitrogen (N)</td><td style="text-align: right;">18.0%</td></tr> <tr><td>  2.0% Ammoniacal Nitrogen</td><td></td></tr> <tr><td>  1.5% Nitrate Nitrogen</td><td></td></tr> <tr><td>  14.5% Urea Nitrogen</td><td></td></tr> <tr><td>Available Phosphate (P<sub>2</sub>O<sub>5</sub>)</td><td style="text-align: right;">3.0%</td></tr> <tr><td>Soluble Potash (K<sub>2</sub>O)</td><td style="text-align: right;">4.0%</td></tr> <tr><td>Total Magnesium (Mg)</td><td style="text-align: right;">0.5%</td></tr> <tr><td>  0.5% Chelated Magnesium</td><td></td></tr> <tr><td>Copper (Cu)</td><td style="text-align: right;">0.12%</td></tr> <tr><td>  0.12% Chelated Copper (Cu)</td><td></td></tr> <tr><td>Total Iron (Fe)</td><td style="text-align: right;">1.0%</td></tr> <tr><td>  1.0% Chelated Iron (Fe)</td><td></td></tr> <tr><td>Total Manganese (Mn)</td><td style="text-align: right;">0.10%</td></tr> <tr><td>  0.10% Chelated Manganese (Mn)</td><td></td></tr> <tr><td>Total Zinc (Zn)</td><td style="text-align: right;">0.10%</td></tr> <tr><td>  0.10% Chelated Zinc (Zn)</td><td></td></tr> </table> </div>	Total Nitrogen (N)	18.0%	2.0% Ammoniacal Nitrogen		1.5% Nitrate Nitrogen		14.5% Urea Nitrogen		Available Phosphate (P <sub>2</sub> O <sub>5</sub> )	3.0%	Soluble Potash (K <sub>2</sub> O)	4.0%	Total Magnesium (Mg)	0.5%	0.5% Chelated Magnesium		Copper (Cu)	0.12%	0.12% Chelated Copper (Cu)		Total Iron (Fe)	1.0%	1.0% Chelated Iron (Fe)		Total Manganese (Mn)	0.10%	0.10% Chelated Manganese (Mn)		Total Zinc (Zn)	0.10%	0.10% Chelated Zinc (Zn)		<p style="text-align: center; margin: 0;"><b>DIRECTIONS FOR USE and FOLIAR APPLICATION RATES</b></p> <p>Add <b>Grigg Brothers® Ultraplex®</b> to any <b>Grigg Brothers®</b> foliar application at the rate of 3 fl. oz. per 1000 sq. ft. <b>Ultraplex®</b> contains micronutrients. <b>Ultraplex®</b> is a unique formula, no additional surfactant is required.</p> <p><b>IMPORTANT:</b> For best results apply as a foliar spray early in the morning or late evening. Allow to dry 3-6 hours before irrigation. Apply with 1-2 gallons of water per 1000 sq. ft.</p> <div style="border: 2px solid purple; padding: 5px; margin: 5px 0;"> <p><b>COOL SEASON TURF GRASSES:</b> As a foliar - maintenance rate 4 oz. per 1000 sq. ft. Severe deficiency rate 6 oz. per 1000 sq. ft. weekly or as needed.</p> <p><b>WARM SEASON TURF GRASSES:</b> As a foliar - maintenance rate 4-8 oz. per 1000 sq. ft. Severe deficiency rate 8-12 oz. per 1000 sq. ft. weekly or as needed.</p> </div> <p>Foliar fertilizer is intended as a supplement to a regular fertilization program and may not, by itself, provide all the nutrients normally required by turf grasses.</p> <p>Information regarding the contents and levels of metals in this product is available on the internet at <a href="http://www.aapfco.org/metals.htm">http://www.aapfco.org/metals.htm</a></p>
Total Nitrogen (N)	18.0%																																
2.0% Ammoniacal Nitrogen																																	
1.5% Nitrate Nitrogen																																	
14.5% Urea Nitrogen																																	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> )	3.0%																																
Soluble Potash (K <sub>2</sub> O)	4.0%																																
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Total Zinc (Zn)	0.10%																																
0.10% Chelated Zinc (Zn)																																	

Potassium Nitrate; Magnesium Sulphate, Iron, Copper, Manganese, and Zinc Glucoheptonates. **F 1194**

**Warning**  
Supplemental Information  
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200  
One or more components are not listed on TSCA.

**Hazard Statement** Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

**Precautionary Statement**  
**Prevention:** Avoid breathing vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing.

**Response:** If swallowed: Call a poison center if you feel unwell. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call poison center if you feel unwell. Rise mouth. Take off contaminated clothing and wash before reuse.

**Storage:** Store away from incompatible materials. Products should be stored above 12.8°C (55°F).

**Disposal:** Dispose of container in accordance with local regulations.

Rev. 11/2015 US

**IMPORTANT NOTICE:** This product may stain (Keep off unwanted areas such as: sidewalks, patios, driveways, fences, painted areas). As a precaution: Spray off unwanted areas with only water after applying.

**Conditions of sale:** The information contained on this label is believed to be accurate and reliable. Buyer and user acknowledge and assume all liability resulting from the use of this material. Follow directions carefully. Timing, method of application, weather, and other factors are beyond the control of the seller.

5 U.S. Gallons (18.9 liters)  
Net Weight 54.24 lbs. (24.60 Kg)  
Specific Gravity 1.298 pH: 2.9

GRIGG BROS.

MADE IN THE USA.

Distributed and guaranteed by:  
Turfgrass Management, Inc. dba  
**GRIGG BROTHERS®**  
P.O. Box 128, Albion, ID 83311  
Office: 208-673-6340  
Fax: 208-673-6342  
U.S. Toll Free: 1-888-246-8873  
web address: [www.griggbros.com](http://www.griggbros.com)

8 97831 00149 4

LOT      MFR. DATE

% N	<input type="text" value="18"/>
% P2O5	<input type="text" value="3"/>
% K2O	<input type="text" value="4"/>
% Cu	<input type="text" value=".12"/>
% Fe	<input type="text" value="1"/>
% Mg	<input type="text" value=".5"/>
% Mn	<input type="text" value=".1"/>
% Zn	<input type="text" value=".1"/>

Save
Cancel

The figure to the left indicates the proper way to enter the data from the Gary's Green label into GreenKeeper. Notice the product is classified as a liquid. That means there will have two fields for the weight (in pounds) and volume (in gallons) liquid fertilizer. Notice the fertilizer ratio (18-3-4) was left off of the name. It will automatically be added based on the %N, %P<sub>2</sub>O<sub>5</sub>, and %K<sub>2</sub>O values entered in the appropriate boxes below.

The nutrients Mg, Cu, Mn, and Zn are present in very small amounts, less than 1% by weight. That is why they are not whole numbers which is fine. For example, copper (Cu) is 0.12% so it is entered as 0.12.

For the weight and volume, be as accurate as possible because it will influence the density calculation and fertilizer calculations. The label indicates the 5-gallon container weighs 54.24 pounds. The label instructions define the recommended rate in fluid ounces per 1000 square feet so that unit was selected.



**Adding active ingredients to fertilizers:** Push the View Ingredients button to add active ingredients to the fertilizer. Select the active ingredient from the drop down menu. To quickly search the active ingredient list, use the search bar to rapidly find the A.I. of interest. Selecting an ingredient will cause a secondary active ingredient line to appear to add additional ingredients. If there is only one A.I. in your custom product, then leave that second line blank. Selecting an A.I. will also allow you to enter the percentage of A.I. and pounds of A.I. per gallon (for liquid products). These values can be found on the front of a product label if the product has an EPA registration number.

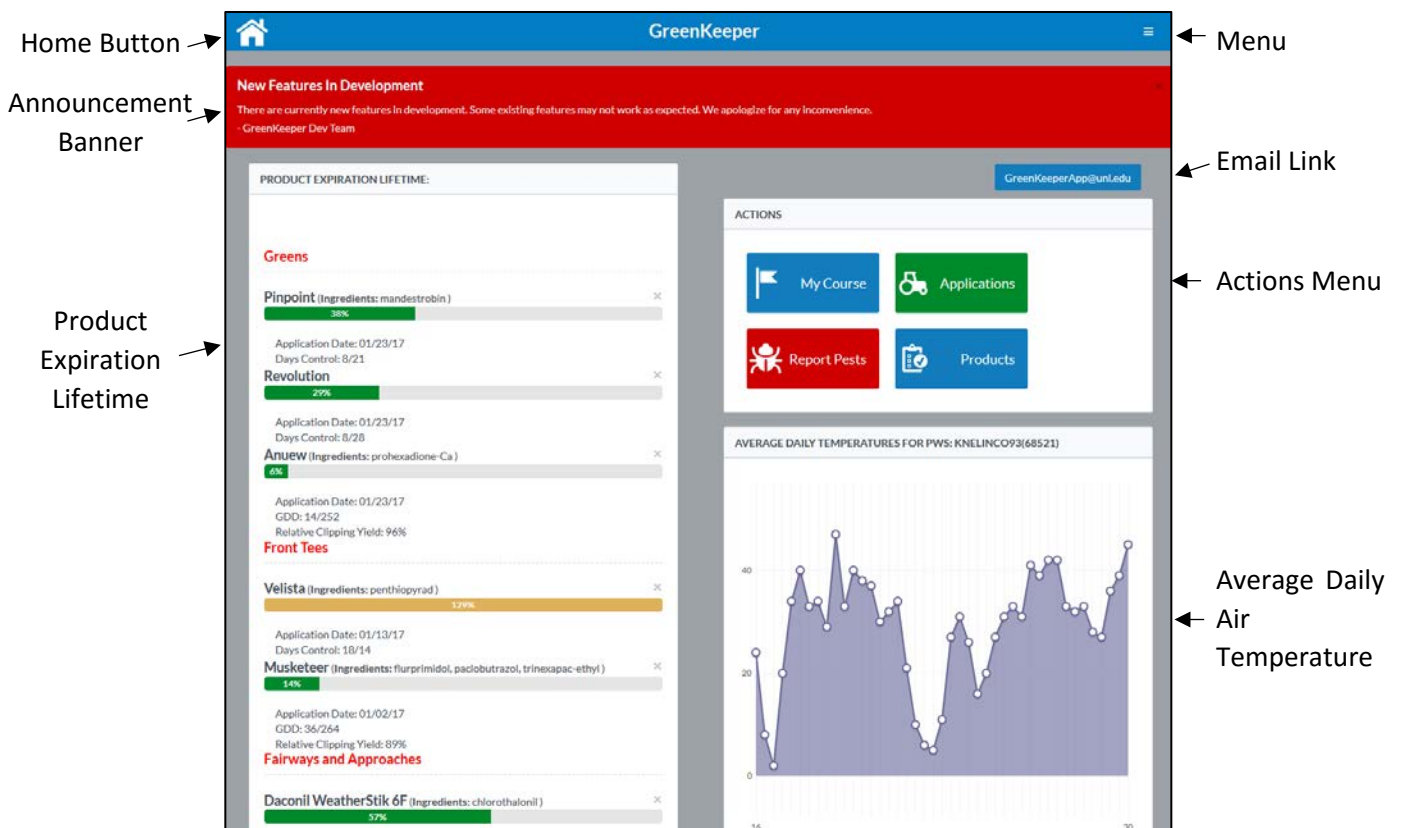
*Remember to save the product before advancing to a different page within GreenKeeper.*

## 6. GreenKeeper Course Homepage

The course homepage within GreenKeeper will be the first page displayed once you log into the site after the course is setup. It provides a snapshot of the products providing active protection on your golf course. This dashboard is called the ‘Product Expiration Lifetime.’ There is also a graph of the daily average air temperature over the past 45 days and an ‘Actions’ menu with links to frequently used pages within GreenKeeper. The email button is a direct link to my email account. Please direct all questions and comments about GreenKeeper to that email for a prompt response. Positive and negative feedback is always welcome!

Occasionally there will be a banner on top of the homepage. This is to alert you to changes or new feature developments within GreenKeeper. In the image below, the banner informs users there are new features under active development which may create a few bugs in the system. We appreciate your patience during the construction. We strive to make big changes during the winter and only fix smaller issues and bugs during the growing season. That is obviously relative to your location and length of season.

There is also a drop down menu with more site options located in the top right corner of the webpage. Click the  icon to expand that drop down menu. Push the  icon at any time to return to the homepage of your course.



## Product Expiration Lifetime

The 'Product Expiration Lifetime' dashboard is the heart of GreenKeeper. It displays the different products applied to the various areas of your course. Within each area designation there is a list of the recently applied products, the active ingredient(s) and pest(s) controlled (if defined). The products are sorted by the amount of control remaining from least to most control remaining.

The bar graph is a graphical representation of the product expiration with respect to time. For example, a product expected to provide 10 days of dollar spot control would have a bar graph showing 60% expired six days after application.

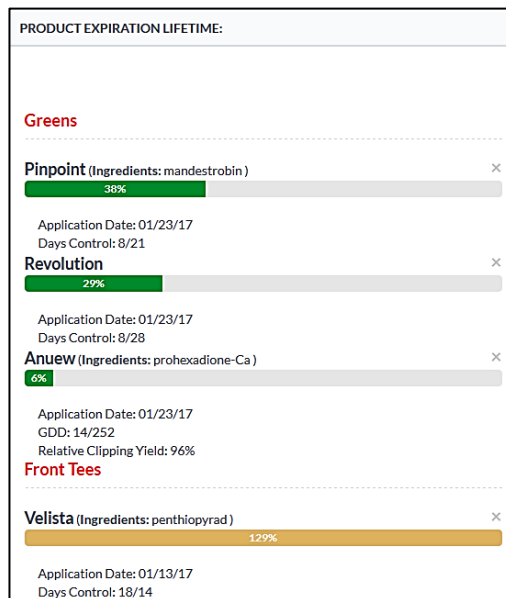
Once a product is 70% expired, bar will change from green to orange. This orange color indicates control is likely waning. After 150% of the product expiration, the bar graph will turn red. This indicates effective control is likely lost.

Below each bar graph is the application date. Below that is the number of days that have elapsed since the product was applied followed by the re-application interval you set when creating that application.

For publically available plant growth regulators (PGRs), the line below the application date has the number of growing degree days (GDD), in degrees Celsius, since the PGR was applied followed by the reapplication interval. **Growing degree days are calculated with a base temperature of 0C for cool-season turf and 10C for warm-season turf.** The GDD re-application interval is automatically generated based on grass species, PGR, rate, and mowing height. It can also be custom defined in the 'New Application' page. The last line indicates the relative growth rate supplied by the PGR relative to non-treated turf. Values less than 100% indicate growth suppression while values greater than 100% indicate growth enhancement, commonly called the rebound phase. More information on the GDD approach to PGR modeling can be found at [turf.unl.edu](http://turf.unl.edu).

If you do not want to apply PGRs with GDD models, then add your favorite PGRs to your product database as a custom product. Follow the same procedure as you would for all other control products, and define the day of control expected.

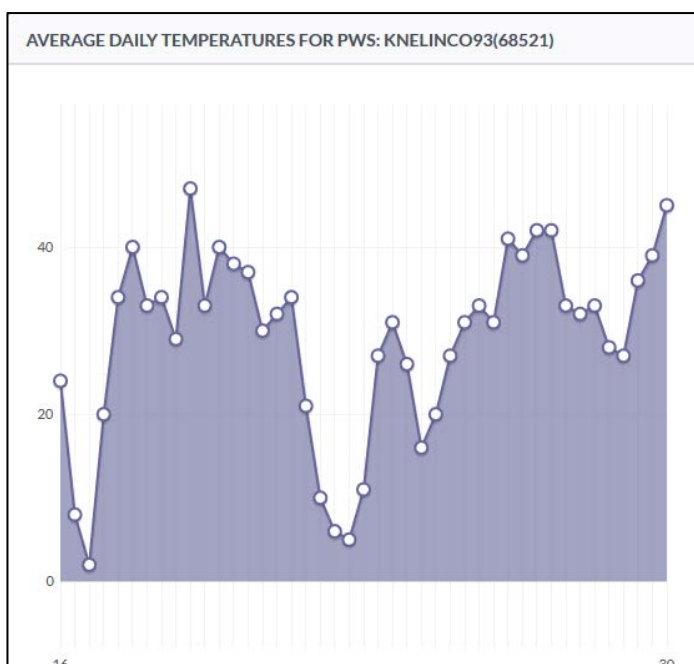
Pushing the small 'x' on the right corner of a product will remove it from the 'Product Expiration Lifetime' menu. You'll be prompted by a dialog confirming the removal of a product that likely still provides control. You cannot bring a product back once removed.





Once a product or products have expired, a 'Reapplication Reminder' will be generated. The reminder will indicate which product have expired and on which management area. Clicking the small 'x' in the upper right-hand corner of any of the reminders will close all the reminders. We recommend also closing the expired product from the 'Product Expiration Lifetime' dashboard so it does not reactive the 'Reapplication Reminder' the next time you log into GreenKeeper.

Closing a product does not remove it from the GreenKeeper records. All past, present, and future scheduled applications can be found on the 'Past Applications' page. That page can be located in the GreenKeeper dropdown menu in the top right corner of the site.



### **Air Temperature Graph**

The graph on the home page shows the average daily air temperature over the past 45 days in Fahrenheit. ***New users that are the first to use a particular ZIP code or PWS will see a blank screen at first.*** New users that have a ZIP code that is already in use by another user will see the temperature data from that code. Changing from a ZIP code to a PWS will reset the chart. ***We recommend switching to a PWS when a PGR has not been recently applied because it***


***will cause the GDDs to reset to zero.*** You can verify your course is using the proper ZIP code and/or PWS by checking both at the top of the graph. In this example, the station KNELINCO93 is the primary reporting station for this course. If the PWS were to fail, then the site would default to the temperature reported for the ZIP code. This redundancy only works in the USA. International course rely solely on the PWS. Weather Underground does not support international postal or airport codes.

***If you are an international user, be sure to have entered the nearest PWS code into your course setup page for weather reporting and PGR GDD calculations.***

*There have been a few reports that the average daily temperature graph is not appear correctly in Internet Explorer. This issue has not been reported in other internet browsers.*

## 7. New Applications

GreenKeeper supports both liquid and granular product and fertilizer applications. The 'New Application' page allows users to design the ideal fertilizer and control program for their turf. Simply define the area, the sprayer or spreader, and the products and GreenKeeper will automatically calculate the number of tanks, product, and mixing instructions. The page will advance through three separate phases as you build your application. First you'll name the application, define the area being treated, the date of the application, and select the sprayer or spreader you plan to use. GreenKeeper will then indicate the amount of sprayer tanks required to treat that area (for liquid apps) and a dropdown list will appear to select the products for the application. Finally, the specific information for each product can be entered such as re-application interval, application rate, pest, and product notes. When all products are added and correct, review the 'Tank Recipes' and finish by pushing the 'Finalize App' button.

To start building a new application, click the  icon in the 'Actions' menu of the home page or click the 'New Application' link in the drop down menu in the upper right-hand corner of any page within GreenKeeper.

### 7.1 Spray (Liquid) Applications

Both spray and granular applications begin with the 'Application Setup' dialog box in the 'New Application' page of GreenKeeper. To get started, fill out the following boxes:

**Application Name & Notes:** This is optional but can be helpful. Many users name their applications (i.e. Spring take-all or Early season dollar spot). It is also a good place for general notes such as the weather that day, the name of the applicator, or other regulatory information that is not product specific. Information that is specific to a particular product (such as EPA registration number) can be entered later on the 'New Application' page.

**Area of Application:** This drop down menu will list all of the management areas you defined in the 'My Course' page. It contains the area size, management area type, species, etc.

**Excess Area to be Treated in Square Feet:** This box allows you to enter excess square footage to the area to be treated. This is helpful if you plan to treat an additional area with the application (i.e. clubhouse lawn) or for over-spray. This box is also optional.

#### User Tips

Some users rely on the 'Excess Area to be Treated' box to round the nearest full tank. To automatically do this, add the square footage to the areas in the course setup page.


Example: A course has 95,000 ft<sup>2</sup> of greens and their 200-gallon sprayer is calibrated to 2.0 gallons per 1000 ft<sup>2</sup>. GreenKeeper App will correctly indicate 190 gallons of mix are required. The user may want to fill the tank completely and adds 5000 ft<sup>2</sup> to the mix. That method works but users can also add 5000 ft<sup>2</sup> to the 'Greens' area in the 'Course Setup' page. Future applications will then indicate one full sprayer tank is required for 'Greens.'

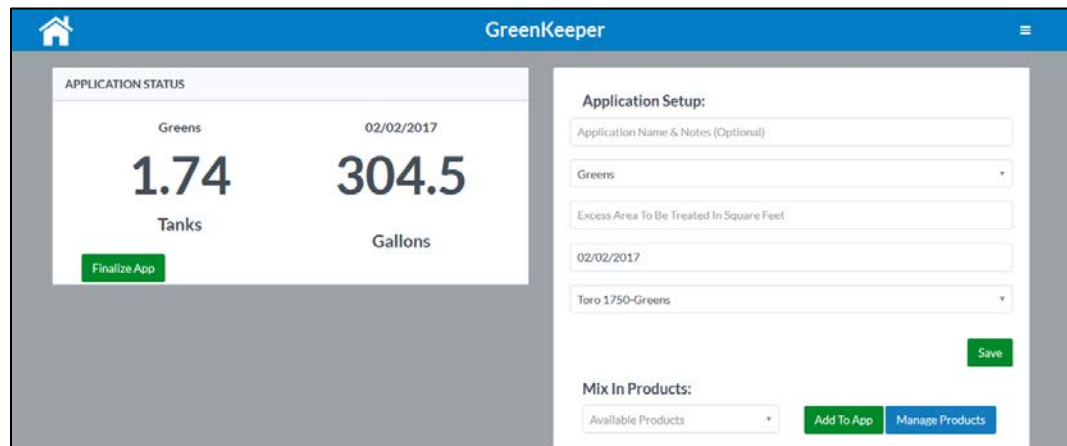
## GREENKEEPER APP USER GUIDE

**Application Date:** Users can enter the day they want to make the application. You can also enter in past and future applications.

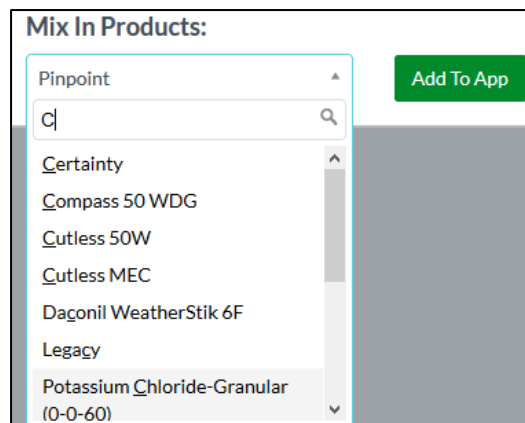
*Note: Past applications cannot be edited while current and future applications can be edited. To edit a current or future application, head to the 'Past Applications' page located in the GreenKeeper dropdown menu. Past applications can be copied and deleted. So to edit a past application, copy it, make the changes, finalize the application, and delete the incorrect application.*

**Sprayer:** This dropdown menu is where the user picks the sprayer to use. The sprayers are stored and can be edited in the 'Manage Sprayers' page of GreenKeeper. This is also located in the dropdown menu. This step is where GreenKeeper separates spray (liquid) apps from spreadable (granular) apps.

**Save:** Pushing the save button advances the 'New Application' page to the 'Mix In Products' section. It will also indicate the number of gallons and sprayer tanks required to make the application. The information entered in the 'Application Setup' dialog can be changed any time after this point. Simply push  after.



**Adding Products to a Tank Mix:** Under the 'Mix In Products' section you'll see a dropdown menu containing all the products in your product inventory. Click the dropdown menu and scroll through the products or type the product name into the search bar to find it faster. Products that have a light gray background are granular products and cannot be added to a sprayer application. If you are missing a product



or need to amend a custom product, click the Manage Products icon. This will open your 'Product Inventory' in a new tab or window. Once you've selected the desired product, click the Add To App icon to define the application rate, interval, and pest.

Mix In Products:

Available Products ▾

Add To App

Manage Products

**Compass 50 WDG** ✕

**Reapplication Interval**

**Application Rate**

**Application Rate Unit**

Preventative

Preventative

Preventative

**Notes**

Save
Hide

**Editing product details:** A final dialog box will appear for each product you 'Add To App.' Here you can edit the reapplication interval in days (or the days of control expected), edit the application rate and set the unit of measure. These three fields will default to the minimum interval and rate set when you added the product to you inventory (custom products) or based on the manufacture recommendations and product labels (public products). Liquid products will only have liquid units while dry (soluble) products will only have weight based unit options.

**Defining Pests:** The user can also define up to three pests controlled by the product. They can also define if the control is preventative or curative. All pests default to 'preventative'. Clicking the toggle switch will change the control from preventative to curative.

Curative

Preventative

The pest lists are specific for the type of product (diseases for fungicides, weeds for herbicides, etc.). This level of specificity is only for publically available products. *The list does not indicate the efficacy of a product for a particular disease. For example, Pythium is a disease option for Compass 50 WDG despite not appearing on the product label. Always consult product labels for pests controlled, rates, and intervals.*

**Notes:** The notes section is a place to enter additional information about a particular product. This is especially helpful for required regulatory information such as the EPA registration number or a product batch number. *Note: Product active ingredient, percentage, and lbs a.i. per gallon are automatically added to the report for public products and when entered into custom products.*

**Finalizing a New Application:** After the different products have been added to an app, the user can review the total tanks, gallons of mix, and product required to complete that application. The tank recipes are also displayed for the full and partial tanks (if required).

If the numbers look appropriate, the user will finally push the Finalize App icon to submit the app into the application log. It will generate a PDF print off describing the application and add the products to the 'Product Expiration Lifetime' box on the homepage. Current and future apps can always be edited by locating the application on the 'Past Application' page.

APPLICATION STATUS

<small>Greens</small>	<small>02/02/2017</small>
1.74	304.5
<small>Tanks</small>	<small>Gallons</small>

Total Required Product

Product	Quantity Required
Urea	98.97 Lbs
Emerald	19.8 Oz
Anuew	15.23 Oz
Total Mix	304.5 Gallons

Tank Recipes

Product	Full Tank	Partial Tank
Urea	56.88 Lbs	42.09 Lbs
Emerald	11.38 Oz	8.42 Oz
Anuew	8.75 Oz	6.48 Oz
Total Mix	175 Gallons	129.5 Gallons

Finalize App

## 7.2 Plant Growth Regulator Applications

The process of adding a plant growth regulator (PGR) to a mix is essentially the same as it is for all other sprayable products. The only difference is the reapplication interval is based on growing degree days (GDDs) instead of calendar days for public PGRs. To learn more about the GDD approach to PGR applications, visit [turf.unl.edu](http://turf.unl.edu).

Growing degree days for PGRs are automatically calculated based on the location of your facility. They are calculated in degrees Celsius. The base temperature for cool-season turf is 0°C and it is 10°C for warm-season turf. GreenKeeper knows which base temperature to apply based on the grass species defined for that area when setting up the course.

GreenKeeper will automatically calculate the ideal PGR GDD re-application interval based on the PGR selected, application rate, grass species, and management type (i.e. greens vs tees vs roughs). All of these factors influence the longevity of a PGR application. Leave the 'Custom GDD' box blank to use the default interval calculated by GreenKeeper.

**Custom GDD (Leave blank to use default)**

Default GDD: 252

Some users prefer to enter their own interval. This can be helpful because there are difference in cultivar performance for each PGR. Shade level is an additional consideration. Shaded turf will have a cooler temperature than turf in full sun. In those situations, increasing the interval may be justified.

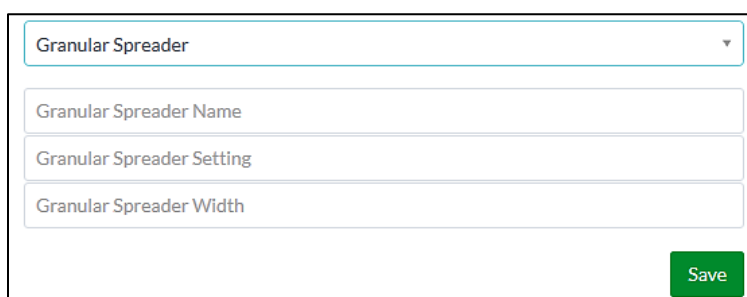
If you want to use a traditional calendar approach for PGRs, add the PGR to your 'Product Inventory' as a new custom product. This will generate a calendar-based interval for those custom PGR products.

### **7.3 Granular Applications**

Granular applications are made with some type of spreader (i.e. rotary or drop spreader). They are set up very similarly to sprayer-based liquid applications at first. Users will enter the name of the app (optional), the area to be treated, excess square footage to be treated and application date.

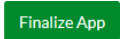
The 'New Application' page format changes when users select 'Granular Spreader' instead of user-defined sprayers. The spreaders are not pre-entered by the user because there is not the same limitations with spreader calibration and capacity as with the sprayers.

Selecting 'Granular Spreader' will reveal three dropdown boxes for the user to enter the spreader name, setting and width. The width should be in feet. These are optional and help with reporting and future apps. Click the save button when complete to advance to product selection.



The screenshot shows a form for creating a granular application. At the top is a dropdown menu with 'Granular Spreader' selected. Below it are three input fields: 'Granular Spreader Name', 'Granular Spreader Setting', and 'Granular Spreader Width'. A green 'Save' button is located at the bottom right of the form.

Add a product as you would for the liquid applications. Products that need to be sprayed cannot be selected from the product list. They will have a light gray background. The granular products will have a white background. They can be selected for granular applications. You can add more than one product to a granular mix, but mixing granular products generally not done in the field. Once complete, review the calculation of total product required and finalize the app to store the application in GreenKeeper.

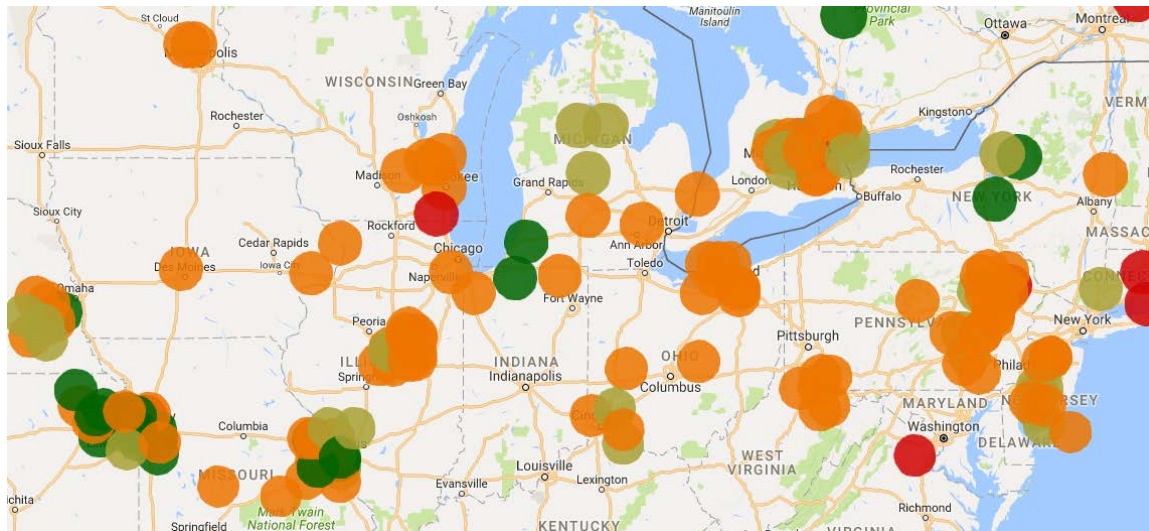
To finalize the application click the  icon. This will submit the application to the course log.

### 7.4 Defining a Pest Linked to Pest Maps

Defining a pest for products on the 'New Application' page will automatically generate a pest report for your course. This form of crowd-sourced data helps other users monitor pest outbreaks and control applications around their region. The reports indicate the pest of interest, the date of the application or report, and if it was curative or preventative.

The shaded circles are roughly 50 miles wide and their center points float within 50 miles around the center point of the ZIP or postal code of a facility. This is designed to help protect user anonymity. Circles move when the page or map is refreshed.

We value our user's anonymity and understand if users do not want to share this type of information. Other users are not able to see what product was used for a particular application. Still, users can prevent the appearance of these pest reports by withholding the 'Target Pest' when setting up a new application. An alternative would be to write the targeted pest into the 'Notes' section of that particular product.



### 7.5 Fertilizer Applications

Fertilizer applications can now be added into GreenKeeper. A fertilizer record dashboard is under development for 2017. It will be located on the homepage of the site. All forms of fertilizer can be added to GreenKeeper. Those include liquid or soluble (dissolvable) for sprayer-based applications (foliar or liquid feeding) and granular for spreader-based product and fertilizer applications.

To apply a fertilizer, select the fertilizer from the product menu on the 'New Application' page the same way you would for other products. This will reveal a drop-down menu for the fertilizer. All fertilizers will have a dialog box for 'Total Product', nitrogen, phosphorous, and potassium. Fertilizers with other nutrients in the database will also display boxes for those nutrients. The image to the left is from the Gary's Green +Iron liquid fertilizer that was added in section 5.4 of this user manual.

The 'Total Product' unit is defined in the 'Fertilizer Unit' dropdown menu below the individual nutrients. In the Gary's Green example to the left, the rate is 9.83 fl oz of product per 1000 ft<sup>2</sup>. The nutrients are boxes are always defined in pounds of nutrient per 1000 ft<sup>2</sup>.

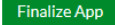
To define the application rate, the user needs to decide whether to apply the fertilizer based on product or nutrient rate. Most users will apply based on nitrogen fertilizer rate. In that situation, the user will enter the desired rate in the 'Lbs N per 1000 Square Feet' box. Then, click anywhere else in the fertilizer window to have GreenKeeper determine the amount of product required to achieve that rate. It will also calculate the nutrient levels for the other nutrients in that fertilizer. In the Gary's Green example, the user entered 0.15 into the 'Lbs of N per 1000 Square Feet' box. GreenKeeper determined the product rate should be 9.83 fl oz per 1000 ft<sup>2</sup> to achieve that nitrogen application rate.

Some fertilizers, like iron sulfate, are typically applied as amount of product per area (such as 1.0 oz per 1000 ft<sup>2</sup>). In that example, a user would enter 1.0 into the 'Total Product' box and select 'Oz per 1000 Square Feet' from the 'Fertilizer Unit' dropdown menu. GreenKeeper will still calculate the nutrient levels for that fertilizer based on the defined application rate.

Fertilizers do not have a reapplication interval like other products.



**7.6 PDF Mixing Instructions**

Upon clicking the  icon, the product and fertilizers will be logged within GreenKeeper and appear on the homepage. Products will appear in the 'Product Expiration Lifetime' and fertilizers will be logged on the fertilizer dashboard (under construction).

A PDF file with the information about the application will also be generated. This record contains information about the app including the name, area, data, tanks required, and sprayer or spreader used. It also lists the products with the rate, active ingredients, notes and total required. Finally, there is a table with the mixing instructions or recipes for both the full sprayer tank and the partial sprayer tanks. These PDF files are stored within GreenKeeper and can be downloaded at any time from the 'Past Applications' page.

Fairways and Approaches		02 Feb 2017
<b>Overview:</b>		
Area: Fairways and Approaches	Required Tanks: 7.5	
Excess: None	Total Gallons: 2250	
Sprayer: John Deere HD300		
<b>Products:</b>		
<b>Urea-Soluble (46-0-0)</b>		
Rate:	0.22 Lbs per 1000 Square Feet	
<b>Anuew</b>		
Rate:	0.15 Oz per 1000 Square Feet	
Notes:	EP A Reg. No. 1001-91	
Ingredients:	27.5% - prohexadione-Ca	
<b>Compass 50 WDG</b>		
Rate:	0.1 Oz per 1000 Square Feet	
Notes:	EPA Reg. 432-1471, Batch number 111-1111	
Target Pests:	Brown patch - Preventative	
Ingredients:	50% - trifloxystrobin	
<b>Total Required Product:</b>		
	<b>Product</b>	<b>Total Required</b>
	Urea-Soluble (46-0-0)	287.5 Lbs
	Anuew	196.02 Oz
	Compass 50 WDG	130.68 Oz
	Total Mix	2250 Gallons
1.		

Fairways and Approaches		02 Feb 2017
<b>Full Tank Recipe: 7 tanks</b>		
	<b>Product</b>	<b>Quantity Required</b>
	Urea-Soluble (46-0-0)	38.33 Lbs
	Anuew	26.14 Oz
	Compass 50 WDG	17.42 Oz
	Total Mix	300 Gallons
<b>Partial Tank Recipe: 0.5 tank</b>		
	<b>Product</b>	<b>Quantity Required</b>
	Urea-Soluble (46-0-0)	19.17 Lbs
	Anuew	13.07 Oz
	Compass 50 WDG	8.71 Oz
	Total Mix	150 Gallons
2.		

## 8. Past and Future Applications

All past applications are stored within GreenKeeper. They are located in the ‘Past Applications’ page. That page can be found in the GreenKeeper dropdown menu in the right-hand corner of any GreenKeeper page.

PAST APPLICATIONS		
Area Filter		Date Filter
All selected		All selected
<a href="#">Download All</a>		
Date	Application Name	
03 Feb 2017	Back Nine Tees	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
02 Feb 2017	Fairways and Approaches	<a href="#">View</a> <a href="#">Copy</a> <a href="#">Delete</a>
01 Feb 2017	Greens	<a href="#">View</a> <a href="#">Copy</a> <a href="#">Delete</a>
01 Feb 2017	Greens	<a href="#">View</a> <a href="#">Copy</a> <a href="#">Delete</a>
01 Feb 2017	Greens	<a href="#">View</a> <a href="#">Copy</a> <a href="#">Delete</a>
31 Jan 2017	Front Tees	<a href="#">View</a> <a href="#">Copy</a> <a href="#">Delete</a>

The ‘Past Application’ page lists all applications (past, present and future) that have been submitted once the green ‘Finalize App’ button is pressed on the ‘New Application’ page. The apps are organized by date and name, and can be filtered by area applied and date with the dropdown menu at the top of the list.

Users can view the PDF print out of every application by pressing the [View](#) button following the application. Pressing the [Delete](#) button will delete the application. This is convenient if the application was not made or if a future application will no longer be required. A deleted application will permanently remove the application from your records.

There is a difference between past and present or future applications. For past applications, pressing the [Copy](#) button will replicate that application in the ‘New Application’ page. Users can then tweak that past application for a current or future application. For present or future applications, an [Edit](#) button will appear in place of the [Copy](#) button, which is seen on past applications. Pressing the [Edit](#) will reload the present or future application so it can be changed or tweaked.

The [Download All](#) button will download all of the PDF printouts for the area and date range selected. These can be stored for future reference and reporting.

Area Filter	Date Filter	
All selected	All selected	<a href="#">Download All</a>

## 9. Pest Reporting and Crowd-sourcing

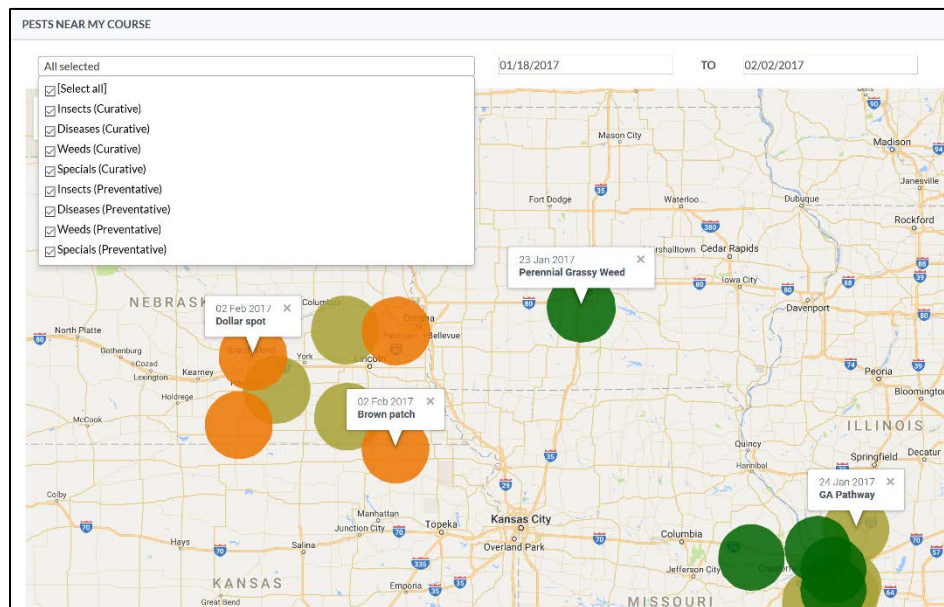
One way to help with pest outbreak scouting in your local area is to anonymously report pest outbreaks on the ‘Pest Report’ page of GreenKeeper. Here users can enter a pest they are observing and the extent of the damage to other users. Again, other users do not have direct knowledge of who is reporting the pest.

Manually entered pest reports and reports generated from the ‘New Application’ page (see section 7.4 of this manual) are then plotted on a map of the world. This form of crowd-sourced data helps other users monitor pest outbreaks and control applications around their region. The reports indicate the pest of interest, the date the application was made, and if it was curative or preventative.

The shaded circles are roughly 50 miles wide and their center points float within 50 miles around the center of the ZIP or postal code of a facility. This is designed to help protect user anonymity.


We value our user’s anonymity and understand if users do not want to share this type of information. Other users are not able to see what product was used for a particular application. Still, users can prevent the appearance of these pest reports by withholding the ‘Target Pest’ information when setting up a new application. An alternative would be to write the targeted pest into the ‘Notes’ section of that particular product.

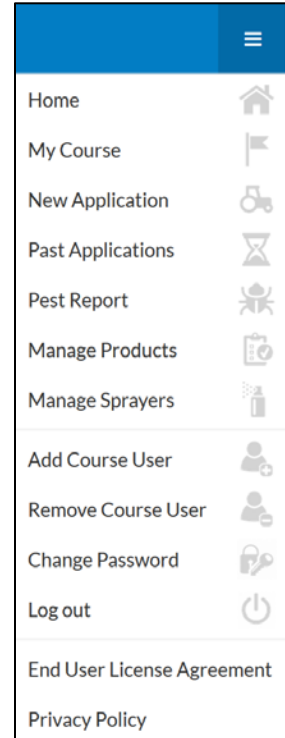
Users can define the date range and pests of interest by using the dropdown menus above the pest outbreak map. The map will default to all curative applications in your region within the past fourteen days.



Clicking the circles will indicate the pest reported, the date reported, the percent infested for manual reports and if it was a curative or preventative report. Diseases are shown in orange circles, weeds in forest green circles, insects in red circles, and specialty products like wetting agents and PGRs in olive green circles. The circles can be dragged around to help differentiate the different reports in areas with high report density.

## 10. Adding and Removing Multiple Users

A real advantage to hosting GreenKeeper as a website in the cloud, and not a smartphone app, is multiple users can access a course on various platforms. It is easy to add several people to a course by clicking the ‘Add User’ link in the GreenKeeper dropdown menu. The menu can be located on the top-right corner of any GreenKeeper page. Simply click the  icon to reveal the menu.



Add a user to your course by entering their email address into the ‘Add Course User’ page. You can also indicate if that user should have full manager rights to your course. Users without management rights can do everything a manager can do except close down past applications on the ‘Product Expiration Lifetime’ dashboard on the homepage.

The user will then receive an email from GreenKeeper with a password to access GreenKeeper. We recommend those new course users reset their password with the ‘Change Password’ page located in the dropdown menu. If the new user already has a GreenKeeper account for another course, then please email us at [GreenKeeperApp@unl.edu](mailto:GreenKeeperApp@unl.edu) and we’ll switch the course access.

To remove a user from your course, enter the email of that user into the ‘Remove Course User’ page and that email will lose access to the course. If you do not know the user’s email, then email us at [GreenKeeperApp@unl.edu](mailto:GreenKeeperApp@unl.edu) with the user’s name and we’ll fix it.

## 11. Frequently Asked Questions

- **I can't find GreenKeeper in the App Store or Google Play, why?**
  - GreenKeeper is a web-based app. That means you access it from the internet browser of your computer, tablet or phone. Just type in [www.greenkeeperapp.com](http://www.greenkeeperapp.com) and login.
- **Is there a preferred internet browser for GreenKeeper?**
  - GreenKeeper will work correctly on most computer and mobile browsers. It has been extensively tested on Google Chrome, Mozilla Firefox, and Apple Safari. GreenKeeper is not compatible with Microsoft Internet Explorer because they have replaced IE with Microsoft Edge. This new browser, Edge, is fully compatible with GreenKeeper.
- **After I registered, I was directed to a login page. Did it work?**
  - Yes, you will first have to register. After you've successfully registered, you'll be directed to the login page. Re-enter the email and password to begin your GreenKeeper experience. We recommend clicking the 'Remember Me?' box to bypass the login page.
- **Will GreenKeeper always be free or is this a teaser rate?**
  - We have no plans to charge to use GreenKeeper. We are thankful to our sponsors to keep GreenKeeper free. The thought of charging individual users seems like a nightmare.
- **Is there a metric version of GreenKeeper?**
  - Not at this point. It is something we've considered but represents a significant development cost. Expect a few metric units, g or mL/100 m<sup>2</sup> sometime in 2017
- **How do I specify my Personal Weather Station code in GreenKeeper?**
  - You no longer need to enter your specific PWS code into GreenKeeper. Instead, select the location of your weather station on the map in the bottom left corner of the 'My Course' page. GreenKeeper will automatically use that station because it is closest to the dot. If you wanted to use another station, for example an airport that is more reliable and accurate, then put the pin over that location.
- **Is any weather station compatible with GreenKeeper?**
  - No, a weather station needs to be directly linked into Weather Underground for GreenKeeper to access the data. You'll need to contact your weather station manufacture to see if it is compatible. Other 'Personal Weather Stations' are designed to integrate with sites like Weather Underground and are relatively inexpensive. More info about weather station compatibility, please visit this website: <https://www.wunderground.com/weatherstation/buyingguide.asp>.

- **Can I add multiple areas to an application?**
  - Not at this time, but it is something we plan to add in the future.
- **How do I reset my password?**
  - On the login page there is a symbol that looks like (!) in the top right corner. Click that and then enter the email address you used to create your account. Submit that email and GreenKeeper will reset your password and send you a temporary password. Be sure to reset your password to something you'll remember once you login.
- **I already have an account in GreenKeeper but need to move to another golf course. How will I do that and what happens to my other course?**
  - User accounts are not permanently linked to the golf course they setup. Email us at [GreenKeeperApp@unl.edu](mailto:GreenKeeperApp@unl.edu) to request the course you'd like to be added to. It helps if you provide the email and/or name of a person already linked to that course so we can identify the proper course. Your user ID key will then be changed from your existing course ID to the course ID you are joining. Your old course will not be deleted and will remain in the system for other people to use if they'd like.

**Email me with your question and I'll add it here. You can also find video tutorials for GreenKeeper at [YouTube.com/UNLTurf](https://www.youtube.com/UNLTurf).**