



Extension Agronomy

eUpdate

12/22/2014

These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 swatson@ksu.edu, Jim Shroyer, Crop Production Specialist 785-532-0397 jshroyer@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

1. Mobile Apps for agriculture: Introduction	3
2. ID Apps for agriculture	4
3. Calculation Apps for agriculture	20
4. Economic Apps for agriculture	30
5. Scouting Apps for agriculture	34
6. Field Guide Apps for agriculture	39
7. Livestock Apps for agriculture	45
8. Machinery Apps for agriculture	48
9. General Agriculture Apps	51
10. Non-Agriculture Apps	54
11. Future KSUCrops Apps	57
12. Cold hardening in winter wheat	60
13. K-State Corn Production Management Schools scheduled for January	63
14. Canola College 2015, February 19	65
15. Kansas weather: December recap and January outlook	66
16. Comparative Vegetation Condition Report: December 2 - 15	71

1. Mobile Apps for agriculture: Introduction

In recent years, several companies and public institutions have developed Apps for mobile devices with the goal of providing a service to agricultural consultants and producers with educational materials and support tools. There is an increasing interest in these “Ag-Apps” and the use of new technologies for increasing the efficiency in communicating and decision-making.

The articles in this issue of the Agronomy eUpdate provide a brief summary of the current status of Ag-Apps.

Note: Most of the Apps presented in this series of articles are free to download. Before paying for any App, please check online reviews or consult with any specialist working with that App in order to understand the benefits in using it and how it can assist you in your daily farming operations. As a general rule, an App needs to be “easy to use” and “intuitive.” Most Apps do not come with a user guide or a manual. Take all these points into consideration before downloading and using Apps.

I group Ag-Apps into the following nine classifications with the goal of dividing Apps by their different uses and purposes:

Ag-Apps classifications:

1. **ID Apps:** For identification purposes (weeds, insects, diseases, and nutrients)
2. **CALC Apps:** For calculating purposes (nutrient removal calculations, tank mixes, volume to spray, etc.)
3. **ECON Apps:** For checking grain prices, market evolutions, fertilizer price trends, news and finances.
4. **SCOUT Apps:** For scouting purposes or for geo-positioning (soil sampling, recording notes, soil types, etc.).
5. **GUIDE Apps:** For diagnosing crop production issues in the field, primarily related to field guides (crop management: insect, disease, weed, and more).
6. **LIVESTOCK Apps:** Apps related to the animal side, nutrition, health, and information on markets.
7. **MACHINERY Apps:** Apps for associated with agricultural equipment preparation, inventory, providing information of the machine.
8. **GAG Apps:** GAG (general Ag-Apps) for general use, weather-related, for meetings, for reading magazines, among several other Apps’ properties.
9. **NON-AG Apps:** For general use from e-readers to calculators, email, calendar, picture editing, and more.

In summary, there are several different Ag-Apps with diverse applications and unique features that can assist key stakeholders in the farming decision making process.

I will continue updating the list as soon as more Ag-Apps are becoming available. Stay tuned for the Ag-Apps coming from our KSUCROPS team and the K-State Department of Agronomy!

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2. ID Apps for agriculture

These Apps are primarily utilized for identification purposes. This category can be sub-divided into different topics:

- A) Weeds
- B) Insects
- C) Diseases
- D) Nutrients

A) Weeds ID

These Apps can help identify a weed, or search for weeds by name, region, or appearance. Ag Weed ID (FarmProgress), ID Weeds (University of Missouri), Weed Spotter (Bayer CropScience), and the weedalert.com are good for weed ID purposes.

Weeds ID



ID Weeds



weedalert



Woody Weeds



WeedManager



Label Guide...



GrowsGriffith



Weed ID



Weed Guide



Weed Spotter

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Figure 1. Seventeen Weeds ID Apps.

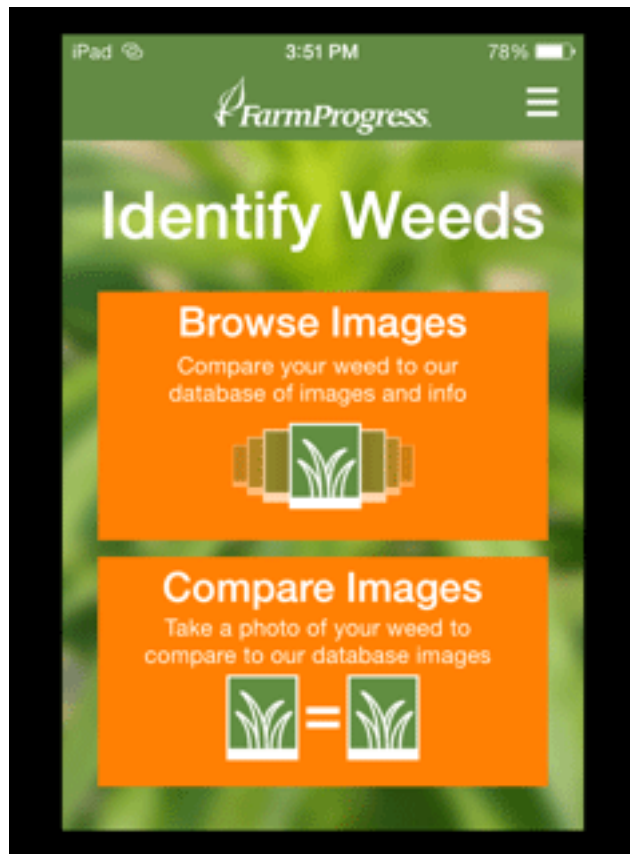




Figure 2. Ag Weed ID App from Farm Progress.

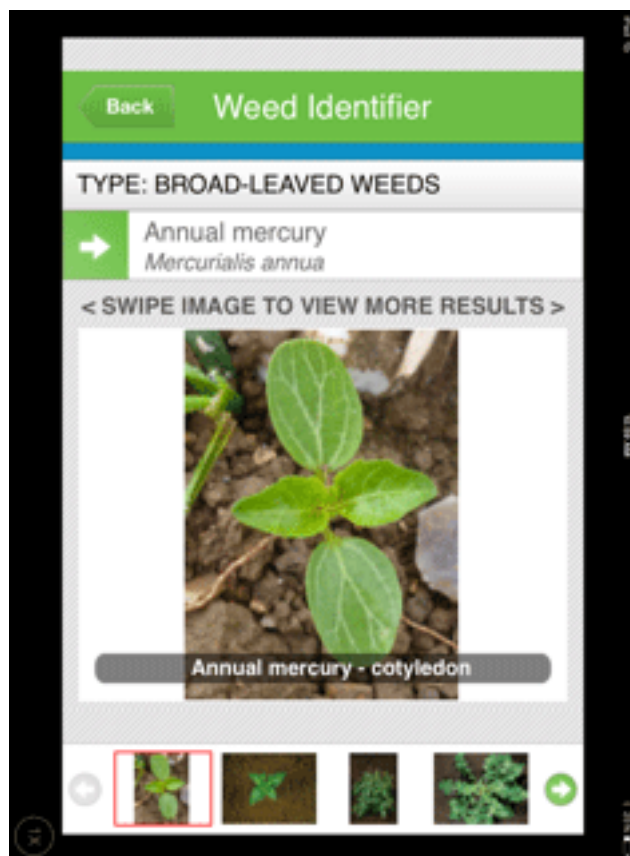


Figure 3. ID Weeds App, University of Missouri.

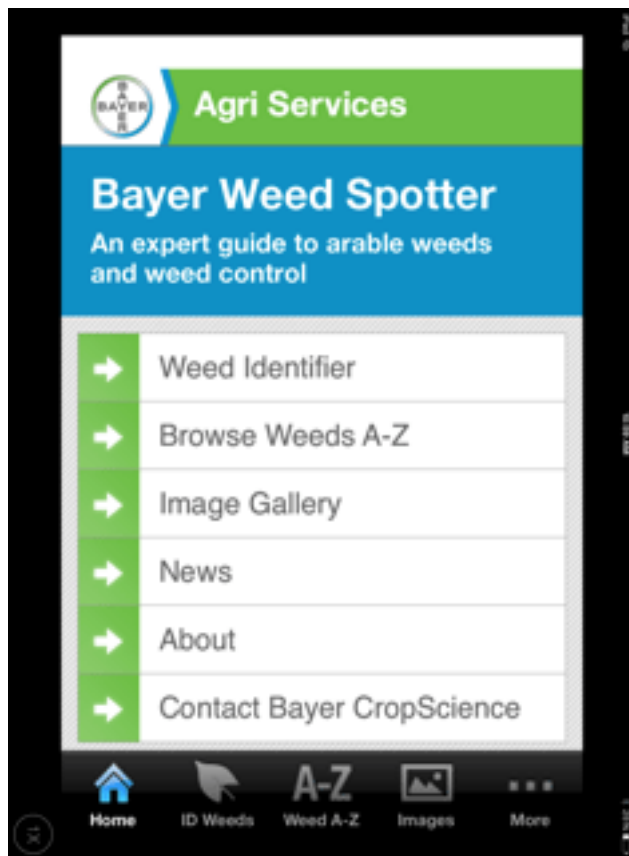


Figure 4. Weed Spotter App from Bayer CropScience.

B) Insects ID

The Western Bean Cutworm Speed presents a visualization tool for western bean cutworm eggs in diverse stages (University of Nebraska-Lincoln). The Aphid Scout (University of Nebraska-Lincoln) provides a visualization of aphid infestation at the leaf level. The Pestbook App (Dupont) offers a compendium of various insect pests and beneficials.



Figure 5. Ten Insects ID Apps.

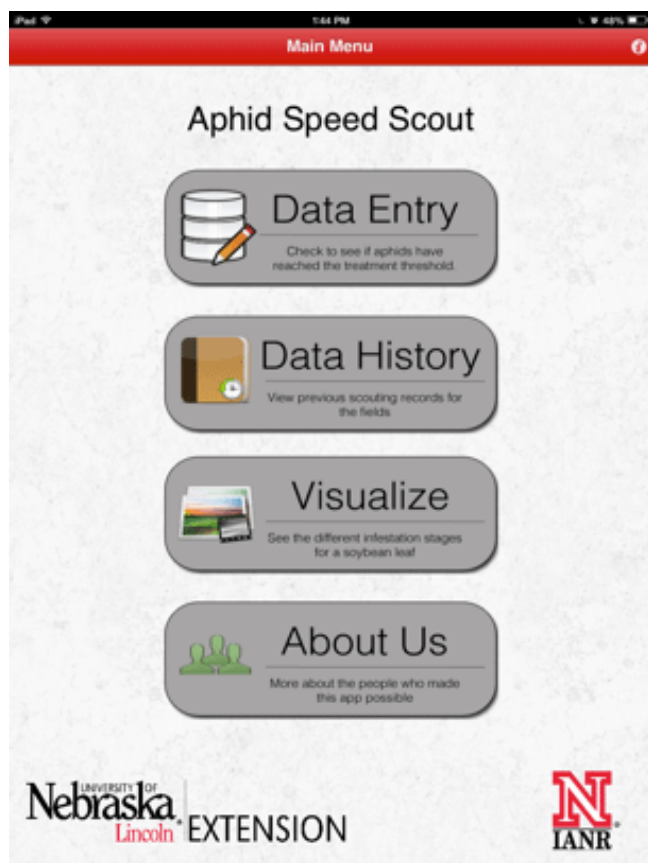
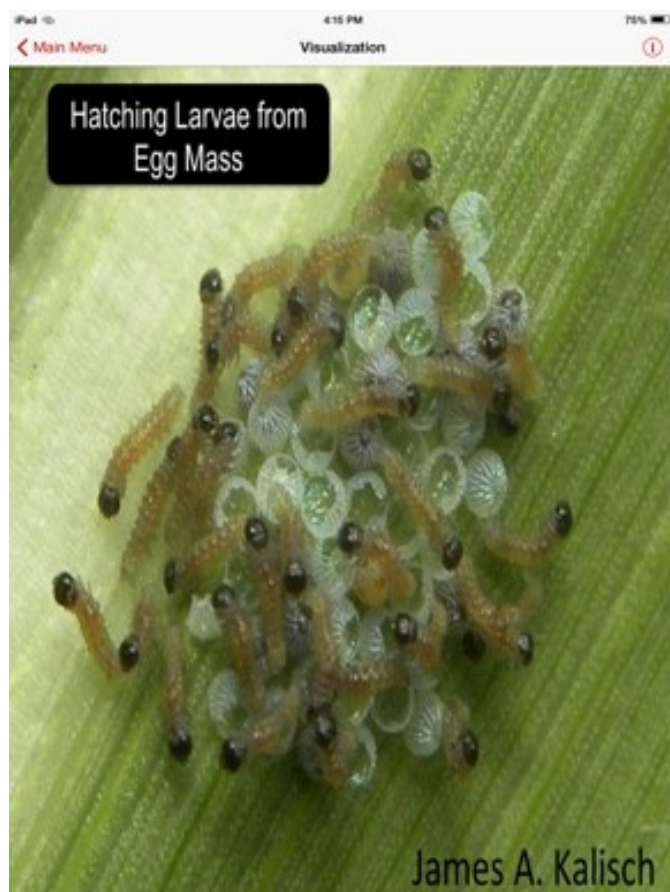


Figure 6. Western Bean Cutworm Speed and Aphid Scout Apps from University of Nebraska-Lincoln Extension.



Figure 7. Pestbook App, DuPont.

C) Diseases ID

This category highlights Apps specific for diseases either in a single crop, such as the Soy Diseases App (South Dakota State University) or for multiple-crops, such as the BASF Cereal Diseases App and the Crop Diseases App (GRDC, Grains Research & Development Corporation). The IPM toolkit (University of Wisconsin) is broader than simply for diseases ID alone. It also includes a list of Extension activities such as meetings, publications, videos, and news (highly recommended!).



Figure 8. Nine Disease ID Apps.

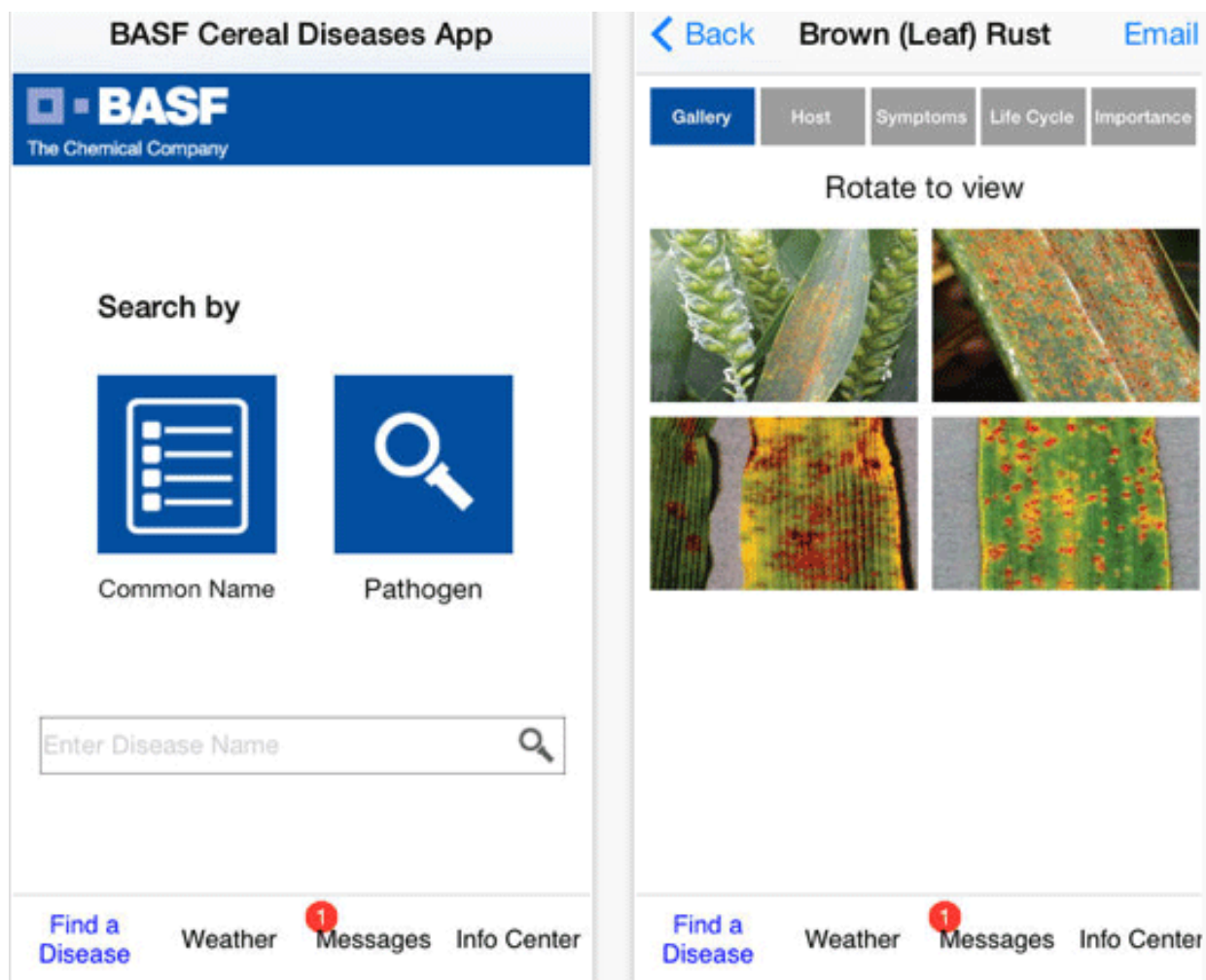


Figure 9. BASF Cereal Diseases App.

iPhone Screenshots

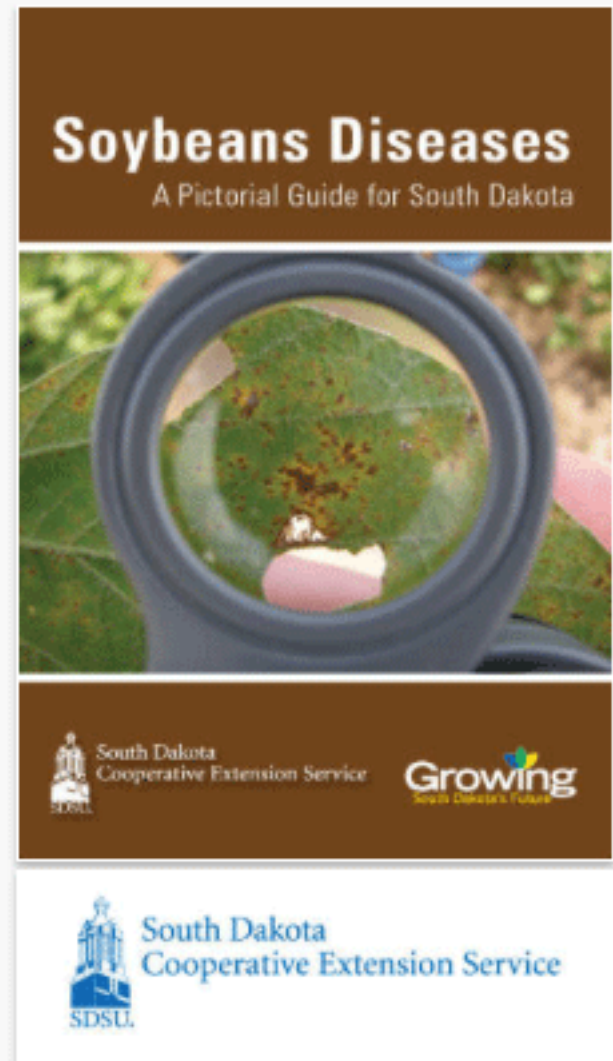


Figure 10. Soybean Diseases App from South Dakota State University.

D) Nutrients (and more)

This section highlights Apps for nutrient deficiency ID purposes and Apps containing information related to nutrient effects on crops. Within this category, the Crop Nutrient Deficiency Photo Gallery App from the International Plant Nutrition Institute (IPNI, \$5) and the new “Canola Starter” (no charge) from Oklahoma State University, with information on the “safe” fertilizer rate based on salt level, are worth downloading.



Figure 11. Nine Nutrient ID Apps.

iPad 10:07 AM 20%
Reset Canola Starter Fertilizer ⓘ

Your crop is: Canola

Row Width(in):

Nutrient Percentage of Fertilizer Source

Nitrogen(N):

Phosphorus(P₂O₅):

Potassium(K₂O₅):

Sulphur(S):

Max Salt Level
(N+K+1/2S):

Safe Rate** (lbs
product per ac):

Calculate

1X

Figure 12. Canola Starter from Oklahoma State University.

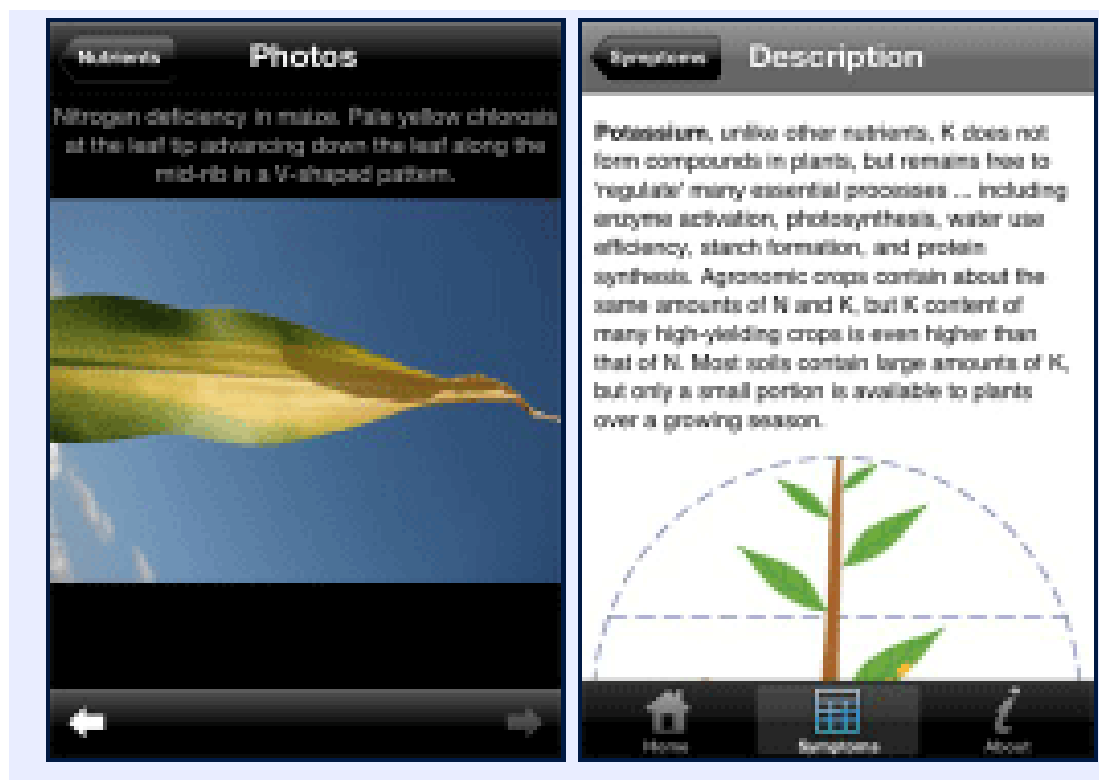


Figure 13. Crop Nutrient Deficiency Photo Gallery from IPNI.

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3. Calculation Apps for agriculture

These Apps are primarily utilized as support tools and for calculation purposes. This category is subdivided into:

A) General Calculators

B) Crop Production

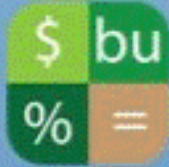
A) General Calculators

These Apps include a way to calculate the optimum fertilizer N rate, silage moisture cost adjuster, maturity date predictor based on tassel date, grain yield estimator, tank mix calculator, and crop nutrient removal, among others. The TankMix App (Dupont) and the nutrient removal App "PlantCalc" from the International Plant Nutrition Institute (IPNI) can assist in making quick decisions in the field. Still, always make sure to check with your crop consultants, Extension agents, and Extension specialists because this information varies depending on soil types, crop yield potential, and environments. The Manure Valuator (University of Arkansas) is an App that provides assistance in valuing the nutrient content of manure.

Calculators



Corn N Rate



Crop Calc



Tank Mix Cal...



PlantCalc



TankmixIT



Vector



Fert. Removal



N Calculator



Nutrient Removal



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Calculators



Potato Calc



SpraySelect



Mix Tank



TankMix



Dry Grain Ca...



Drainage Calc



FertiMatch

Figure 1. Sixteen Calculator ID Apps.

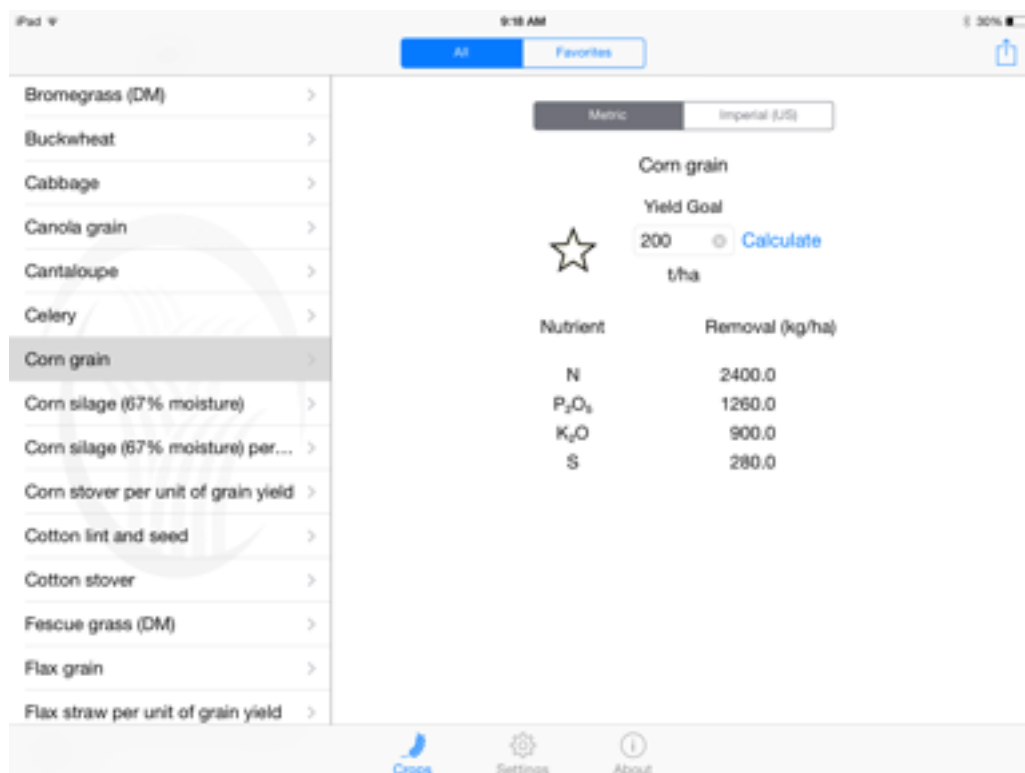


Figure 2. PlantCalc from the International Plant Nutrition Institute (IPNI).



Figure 3. TankMix App from DuPont.

B) Crop Production

This section highlights Apps related to crop production issues and planting management. The Kansas Wheat Yield Calculator (Kansas Wheat Alliance and K-State Research and Extension) and the Corn Advisor (University of Arkansas) Apps both are very useful Ag-Apps. The Kansas Wheat Yield Calculator allows making yield estimations at different growth stages and in several areas of the field. The Corn Advisor App has different features such as calculating lime and nutrient rates, identifying nutrient deficiencies, diseases and insect pests, and providing information about control practices. Extreme Beans is a useful App for calculating soybean seeding rates and for understanding the effect of diverse management practices on maximizing soybean yields. Planting Population from Ag PhD is a good App for estimating planting population.

Crop Production



Plantability



Extreme Beans



Inoculant Calc



Estimator



Refuge Calc



HarvestLoss



Growing De...



Corn Replan...



CornAdvisor

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Figure 4. Twelve Crop Production Apps.

Pad 9 10:25 AM 4G LTE

< Back New Sample

REQUIRED

Feekes Stage

Row Width (inch)

Stalks/Foot

OPTIONAL

Sample Name

Height (inch)

NDVI

Cancel  Save 1X

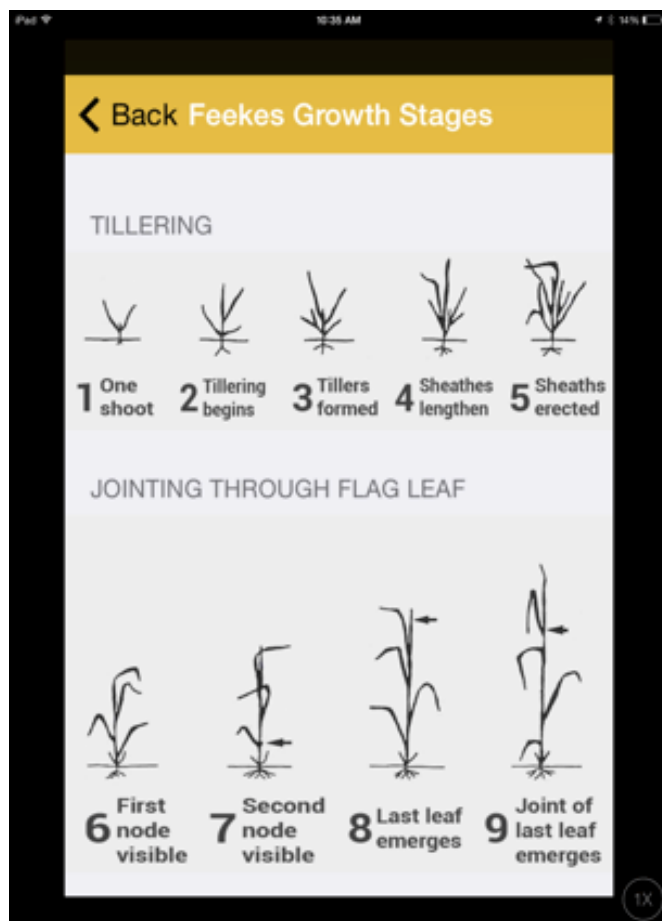


Figure 5. Wheat Yield Calculator from Kansas Wheat Alliance and K-State Research and Extension.

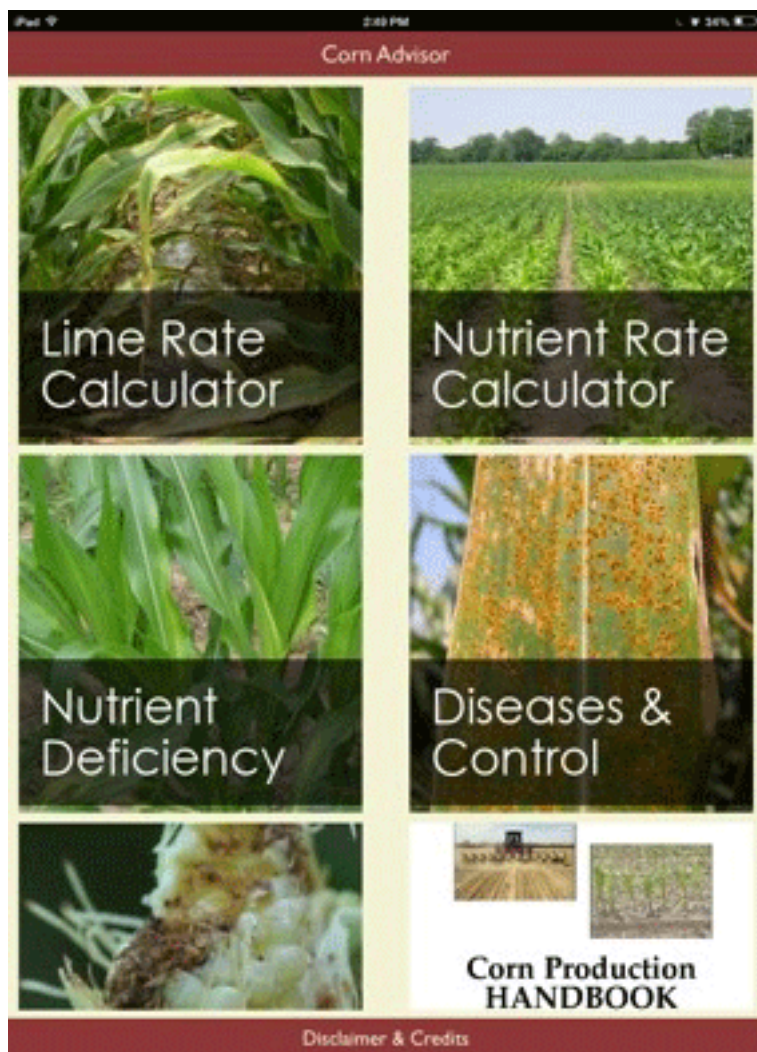
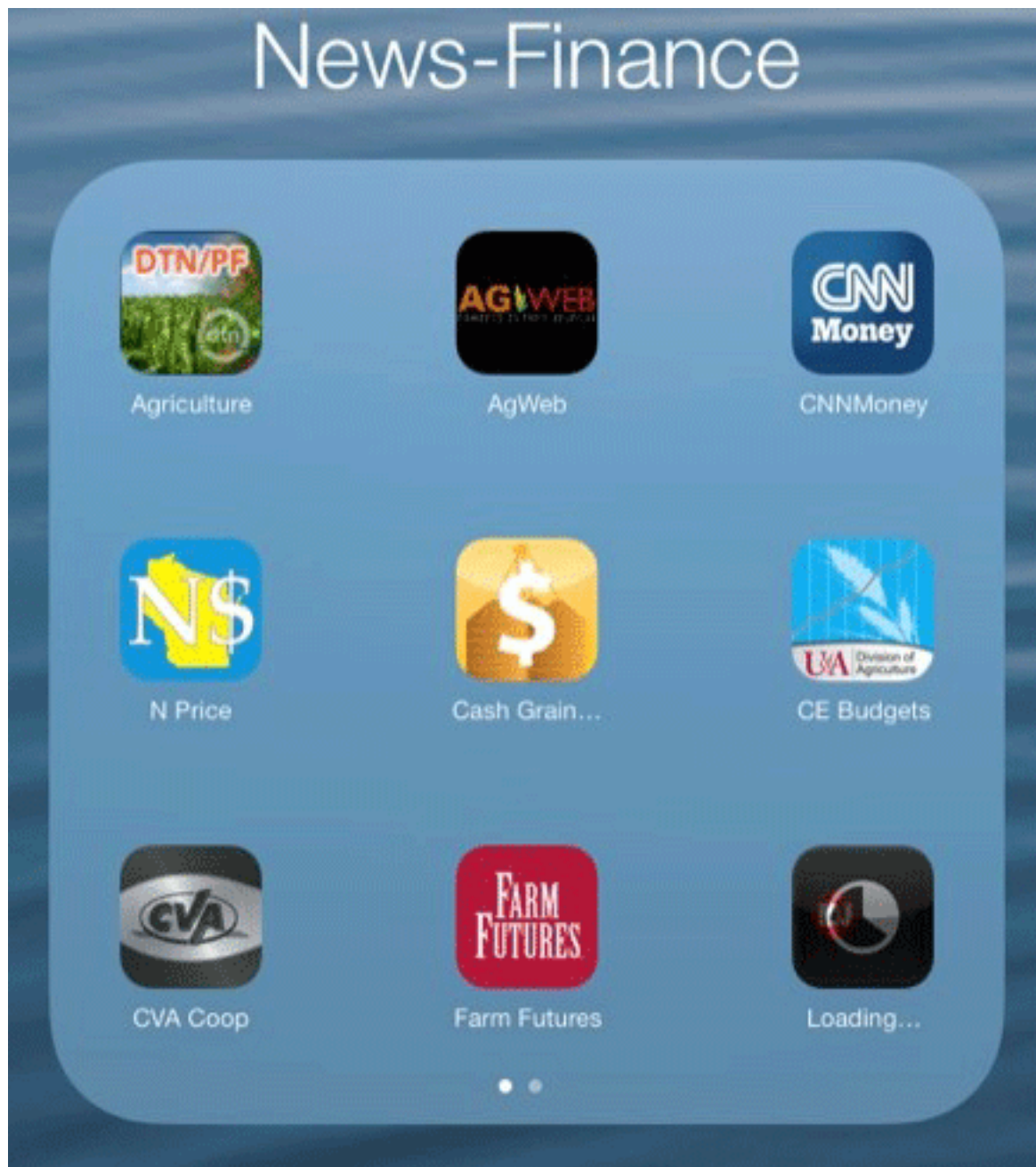


Figure 6. Crop Advisor, University of Arkansas.

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4. Economic Apps for agriculture

These Apps are related to agricultural news, weather, and grain prices. There are several Apps that offer weather, markets, news, and grain prices all in one App. Among some of my favorites are DTN/PF (Progressive Farmer), AgWeb, and CVA Coop. To search for the best cash grain prices, Growers Edge and the Cash Grain Bids (AgWeb) are very helpful. Using these, farmers can identify the closest location and the best price for selling grain. To develop some economic budgets for your farming operation, check the CE Budgets App from the Division of Agriculture, University of Arkansas.



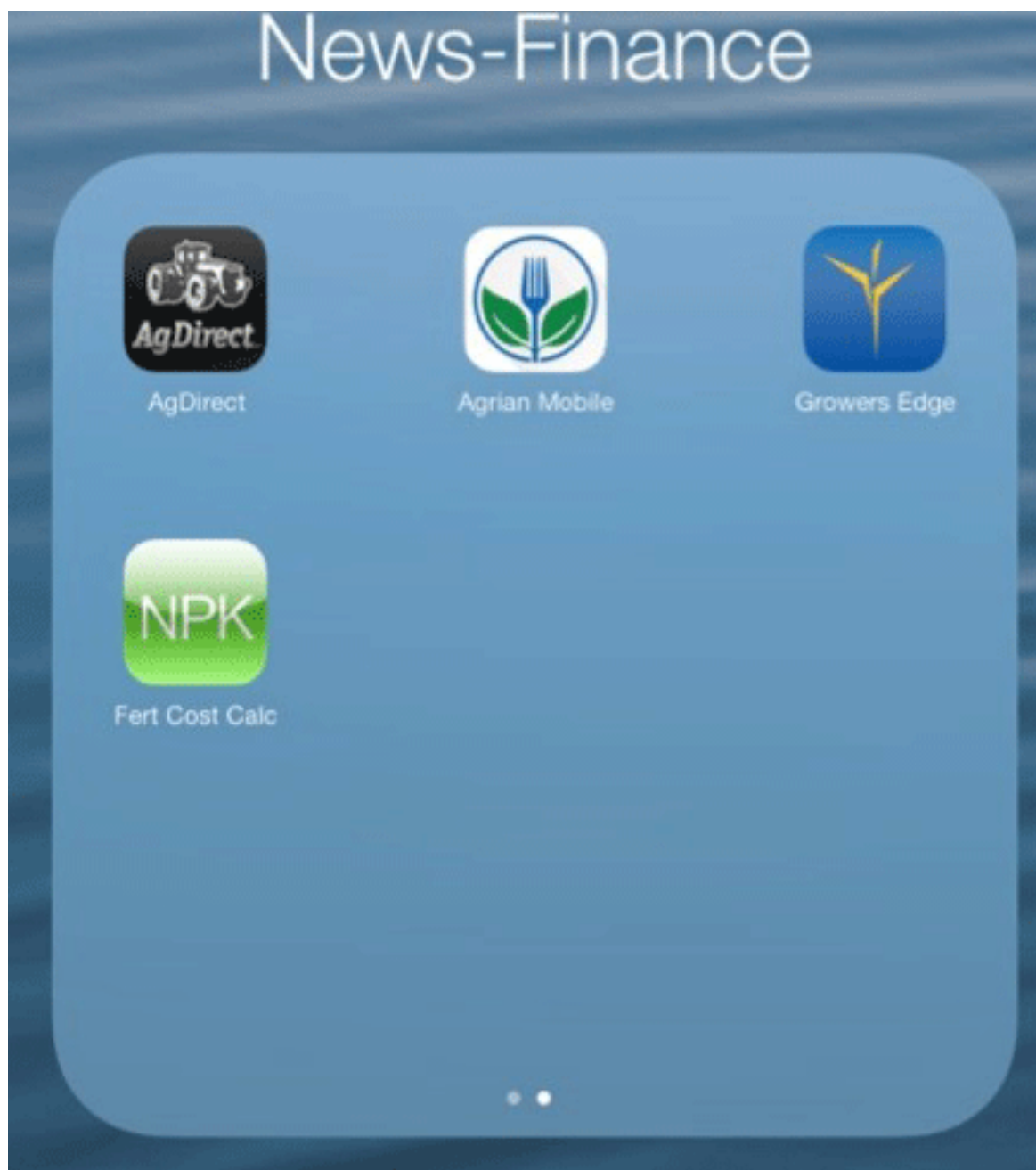


Figure 1. Thirteen Economics (News-Finance) Apps.

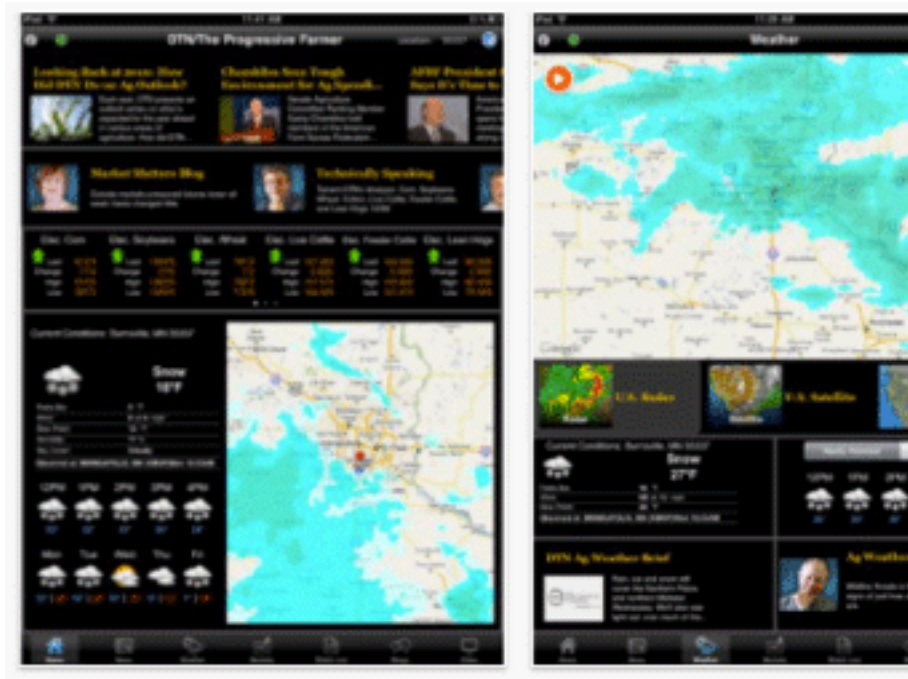


Figure 2. Cash Grain Bids Price Finder from AgWeb.

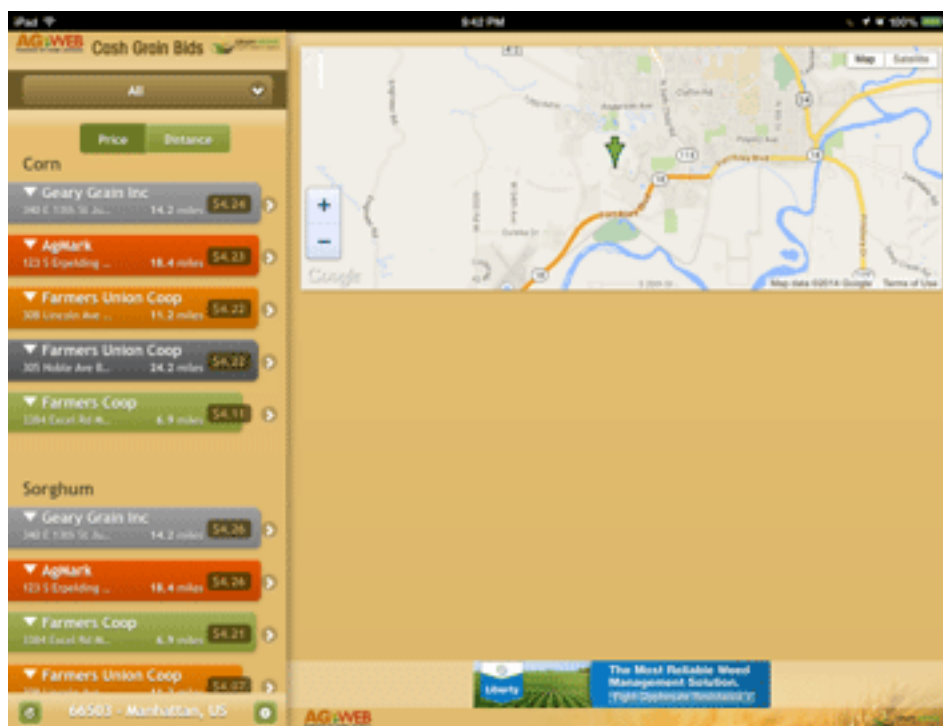


Figure 3. DTN/PF (Progressive Farmer) App.

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5. Scouting Apps for agriculture

This section pinpoints Apps that can assist farmers in preparing maps, taking soil samples (geo-referencing the sampling points), calculating areas, measuring distances, and getting information about the soil type, among several other features. The ConnectedFarm Scout App is useful for preparing maps, scouting, and geo-positioning points within your field. The ArcGIS App is very useful for calculating areas and distances within your field or for determining the final size for a plot area for research purposes.



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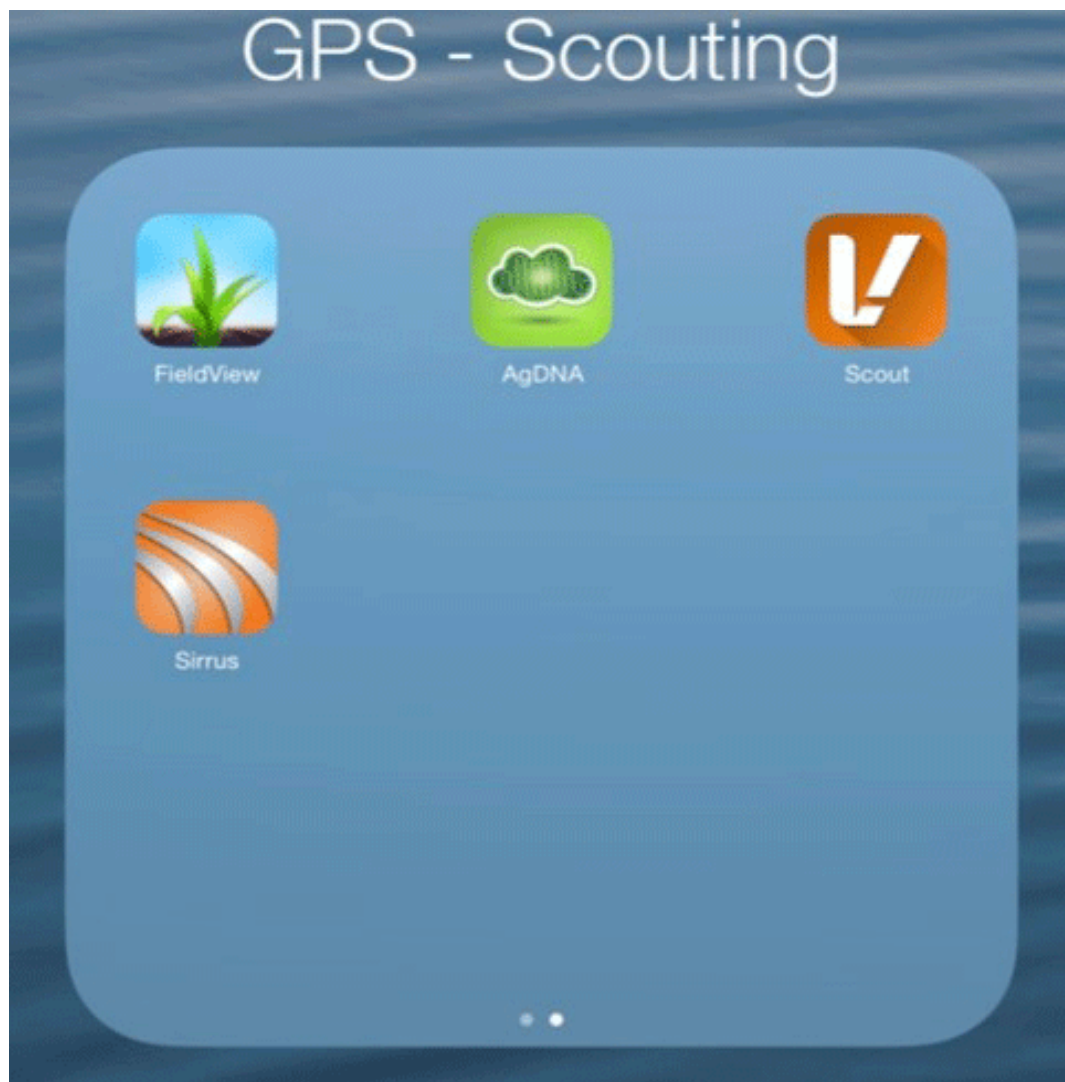


Figure 1. Twelve scouting Apps.

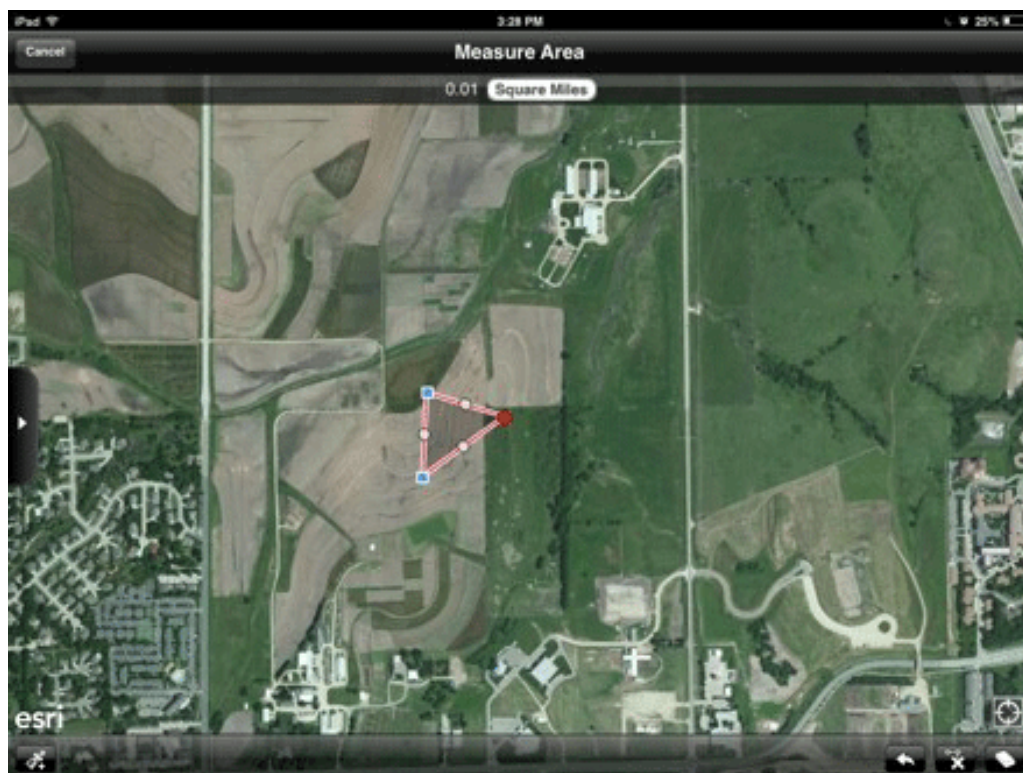


Figure 2. ArcGIS App.

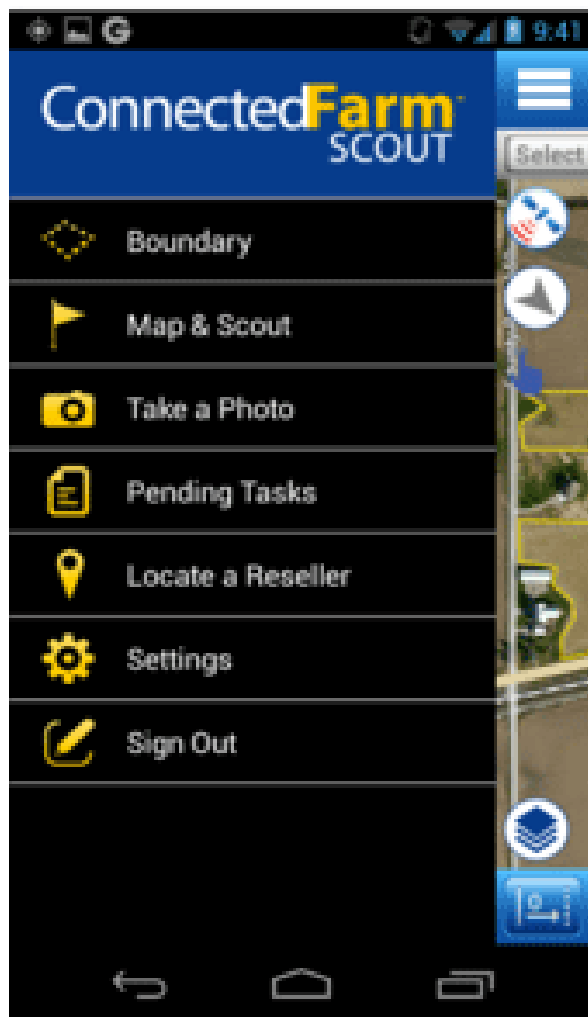


Figure 3. Connected Farm Scout App.

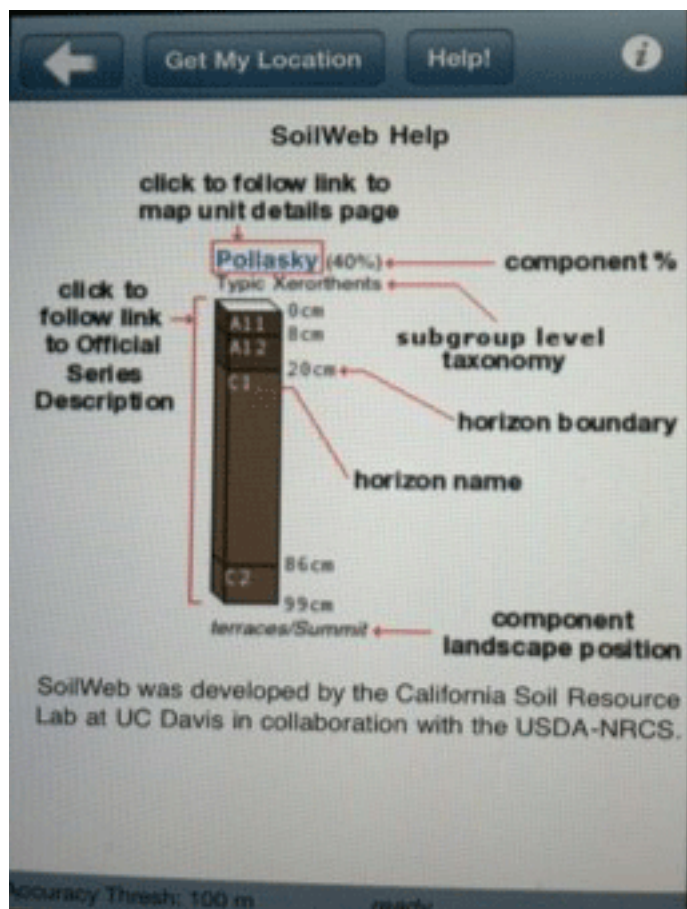


Figure 4. SoilWeb App.

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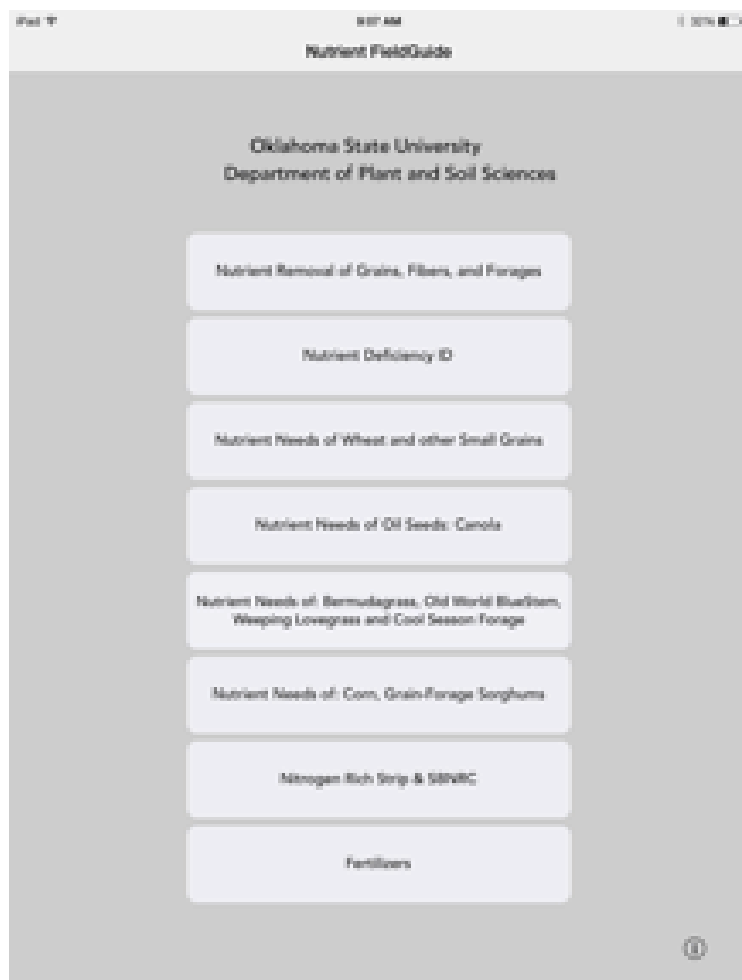
6. Field Guide Apps for agriculture

These Apps compile information from several production topics such as soil fertility, weeds, insects, diseases, crop management, calculators, and more. The Corn and Soybean Field Guide (Purdue University) is a very useful App. The fplants App portrays diverse forage species and provides a guide to forage ID. The HortPlants (University of Arkansas) App provides an extensive photographic catalogue covering many plants of the Mid-South, such as trees, vines, ground covers, shrubs, and ornamental grasses, among others. A new App from Oklahoma State University (FieldGuide, Dr. Arnall) is worth downloading, with information on nutrient removal, deficiency ID, nutrient demand, and fertilizers.





Figure 1. Twelve Guide Apps.



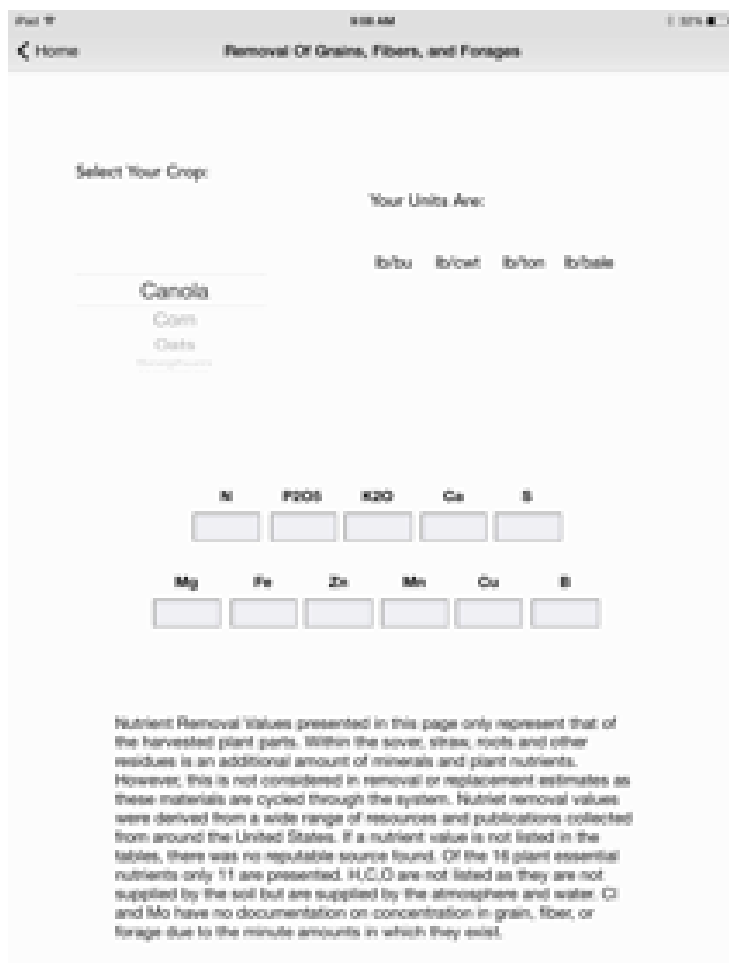


Figure 2. Field Guide App from Oklahoma State University.



Figure 3. Purdue University Field Guide App.



Figure 4. fplants Guide to Forage Plants ID App



Figure 5. Ag-PhD Field Guide App

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7. Livestock Apps for agriculture

These Apps relate to animal management. ThermalAid (University of Missouri) is an App that uses live weather information to determine if livestock may be affected by heat stress. The iHerd App helps simplify herd management and the traceability of the stock (for property managers). The Cattle Market Mobile is an App that provides information on current auction prices to assist producers around the U.S. (with state-by-state information).



Figure 1. Eight Livestock Apps.

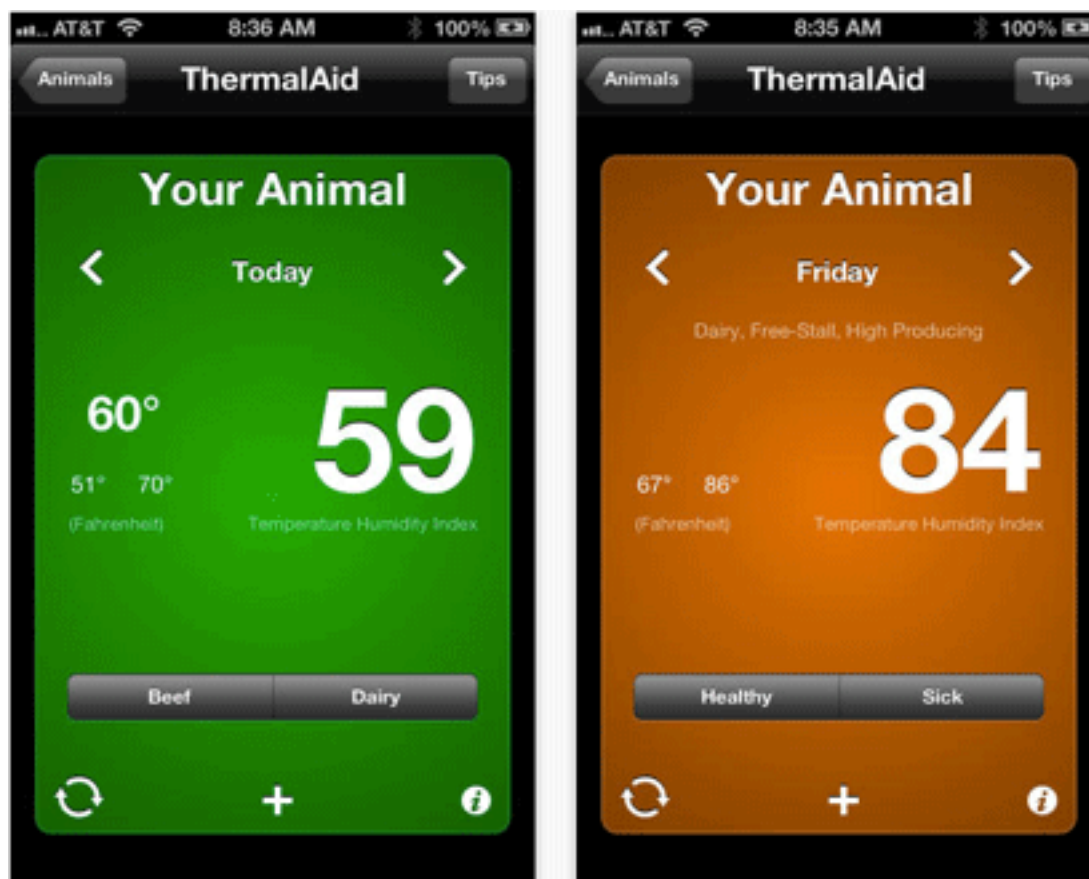


Figure 2. Thermal Aid App from the University of Missouri.

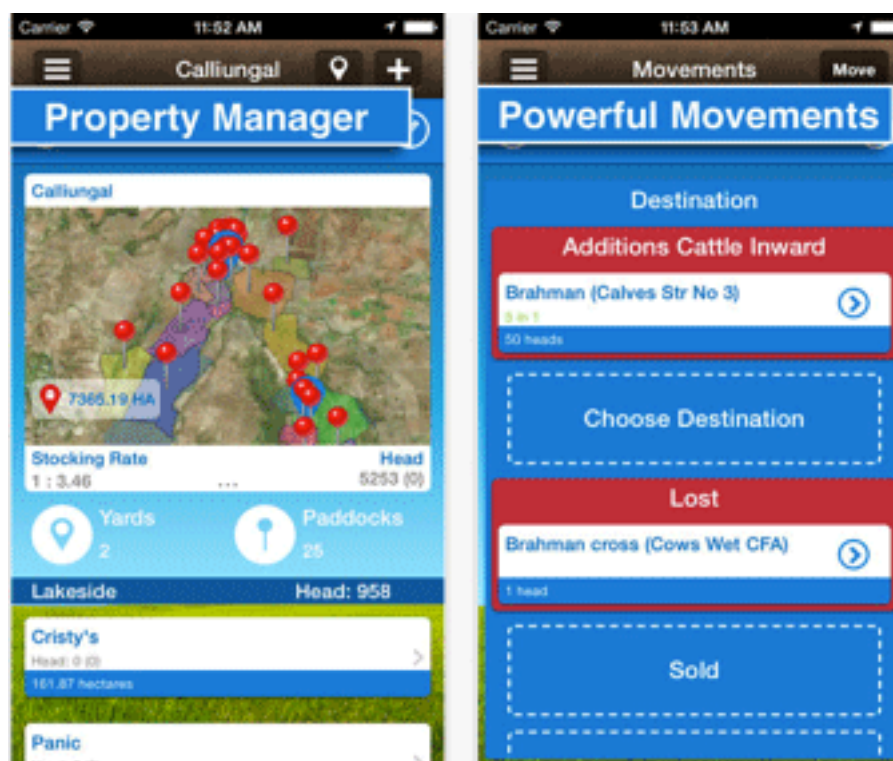


Figure 3. iHerd App from Australia.

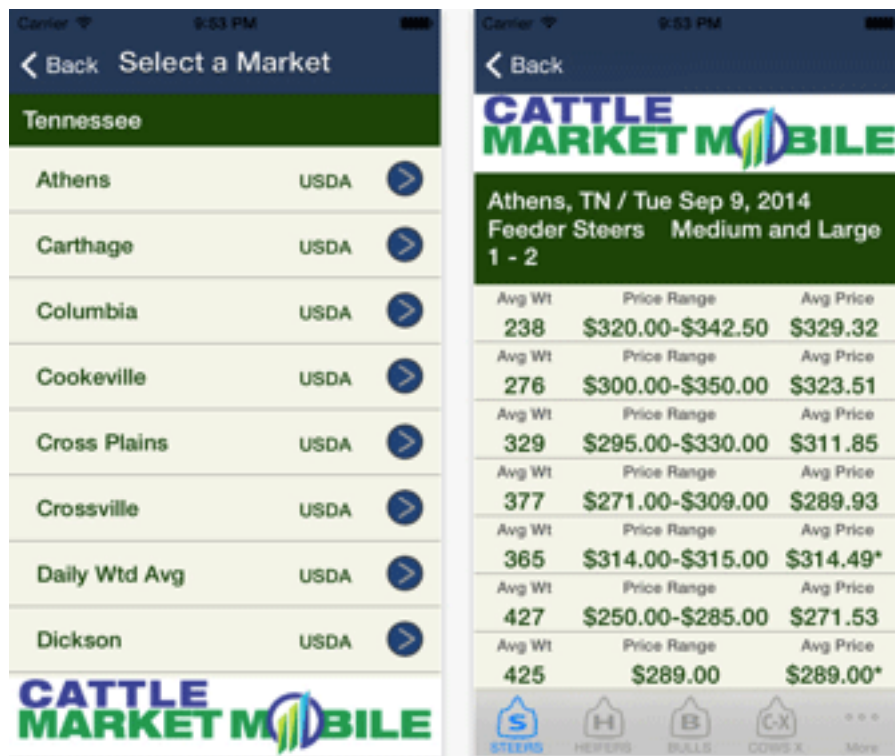


Figure 4. Cattle Market App.

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8. Machinery Apps for agriculture

These Apps relate to farm equipment. The MyShed App from Case-IH is an excellent example of customer service using the new technology; users can find parts faster for CASE-IH equipment. JDLink is an App for those who have John Deere equipment, with information on how to optimize the use of the equipment. The Machinery Sizing App from K-State (only available for Android) helps users quickly estimate the necessary tractor horsepower to pull various implements.



Figure 1. Ten Machinery Apps.



Figure 2. MyShed App from Case-IH.

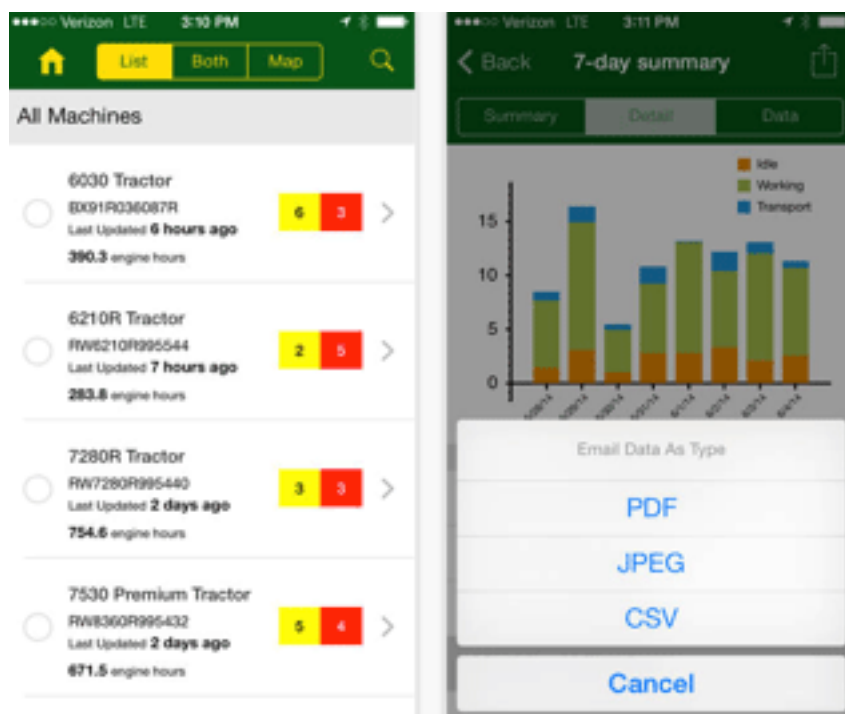


Figure 3. JDLink App from John Deere.

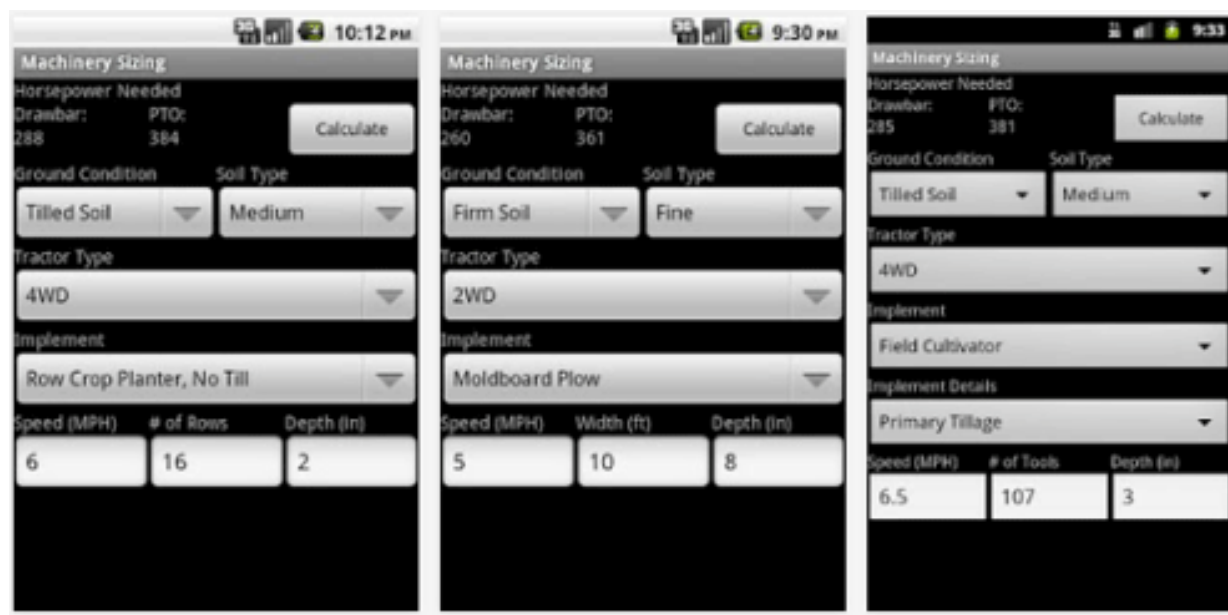


Figure 4. Machinery Sizing App from K-State.

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9. General Agriculture Apps

These Apps present overall information about agriculture and related areas (such as weather information). The Crops & Soils App presents Crops & Soil Magazine in an electronic format. The Kansas Soybean Commission has an App that provides information about the Commission.



Figure 1. Eight General Ag Apps.

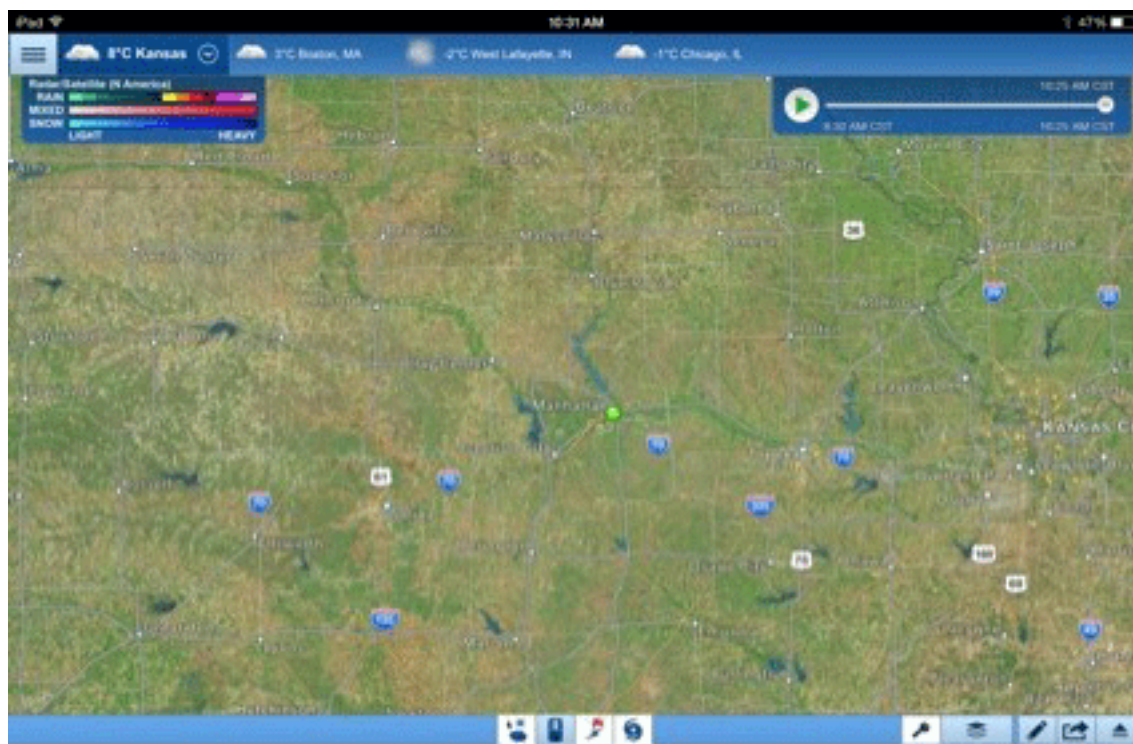


Figure 2. Weather App from Intellicast HD.



Figure 3. Crops & Soils Magazine App from the American Society of Agronomy (ASA).

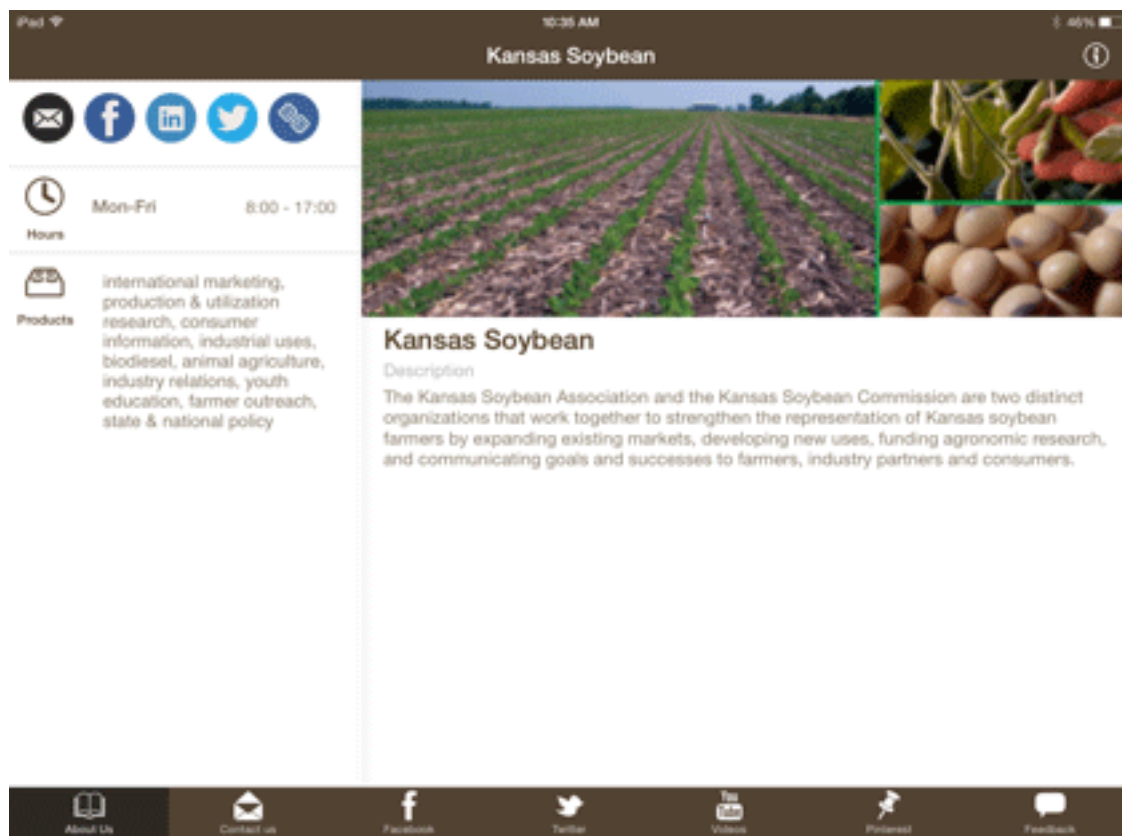


Figure 4. Kansas Soybean Commission App.

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10. Non-Agriculture Apps

These Apps are general in nature, and can be utilized in several ways: scanning images and converting to PDF, calendar, calculator, storing documents in the cloud, reading PDF documents, and others.

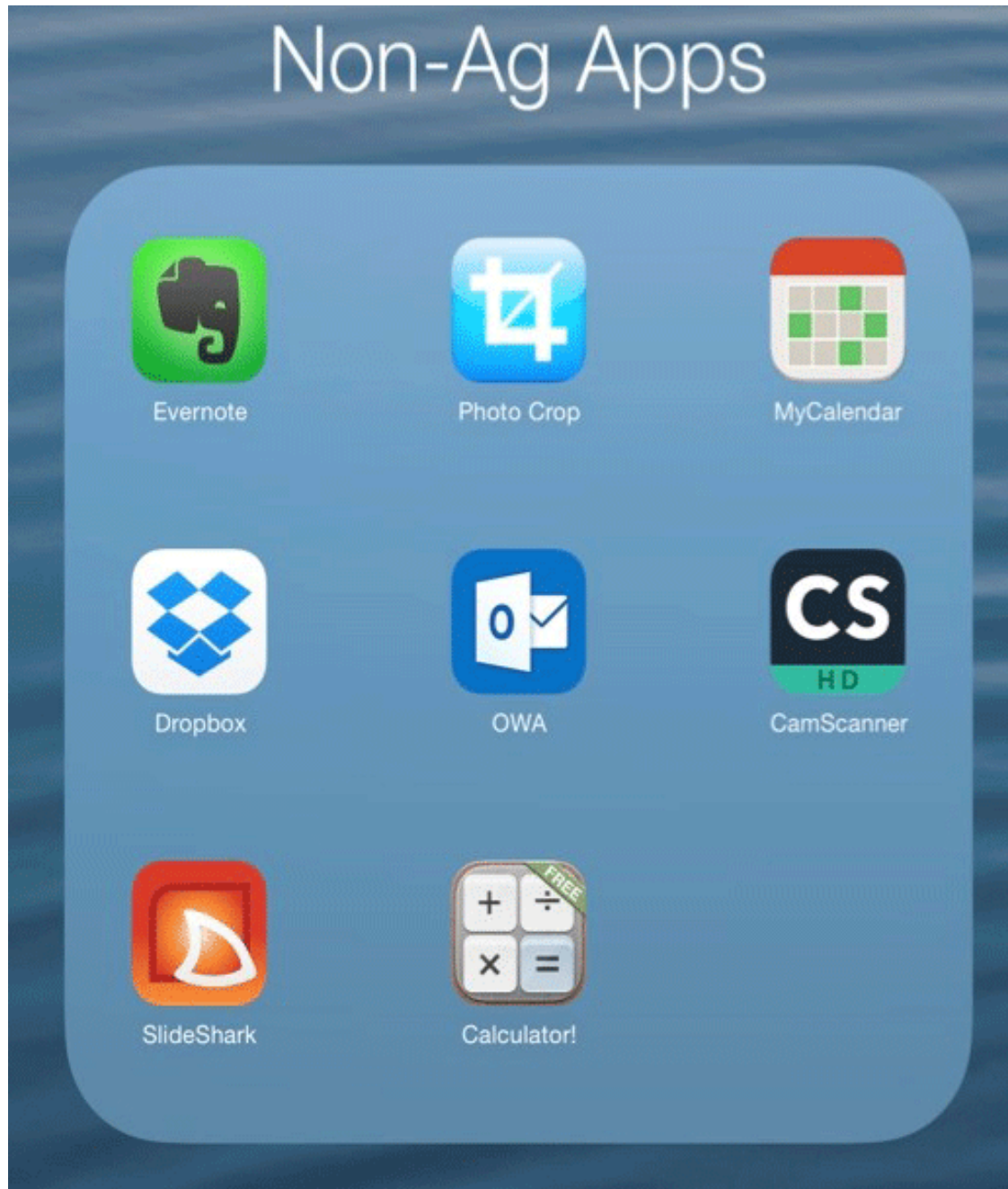


Figure 1. Eight general use Apps.

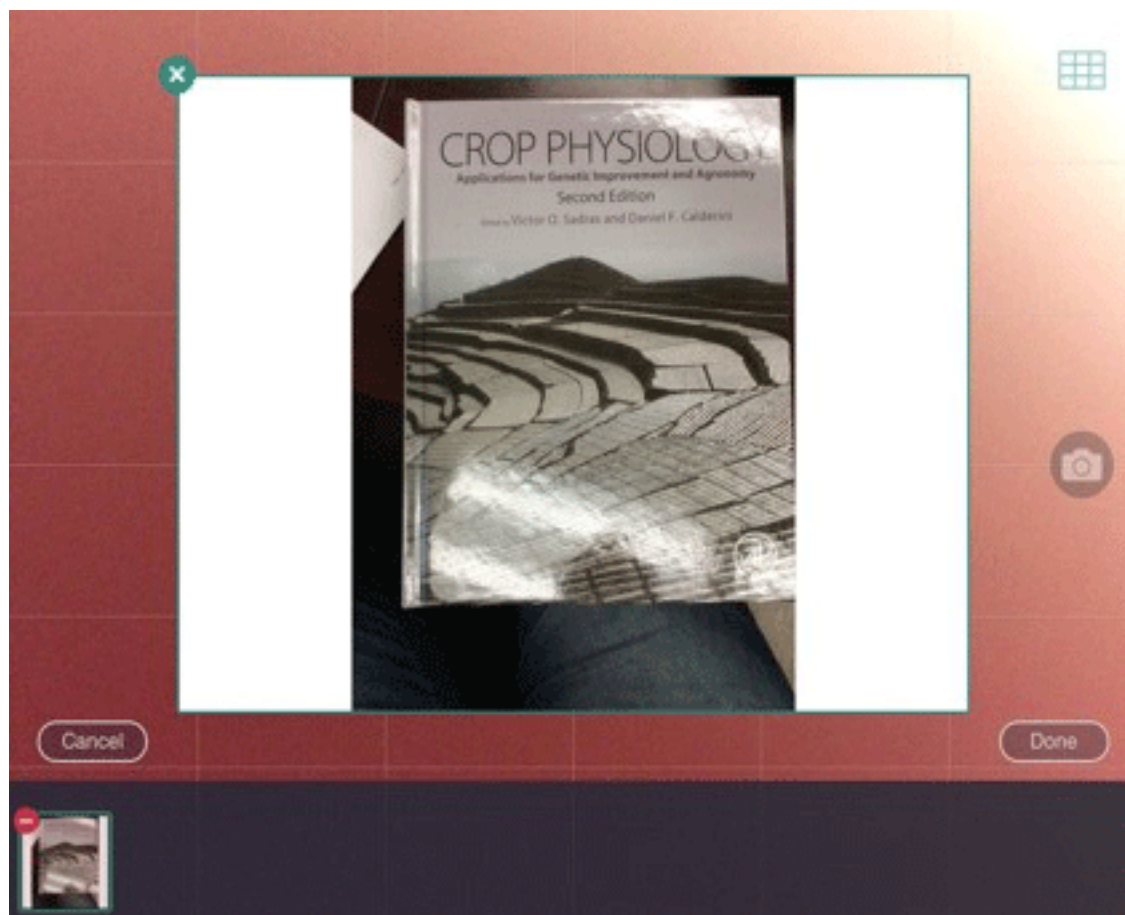


Figure 2. CamScanner App.



Figure 3. Calculator App.

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11. Future KSUCrops Apps

The KSUCROPS team, a crop production team led by Dr. Ignacio Ciampitti, is currently developing two new Apps on soybean and sorghum. These Apps will be available before the 2015 growing season. SoyYIELD Calc will allow farmers to estimate soybean yields before harvest. SorYIELD Predictor is a tool to predict sorghum yields before harvest using imagery information. Both are Android Apps.

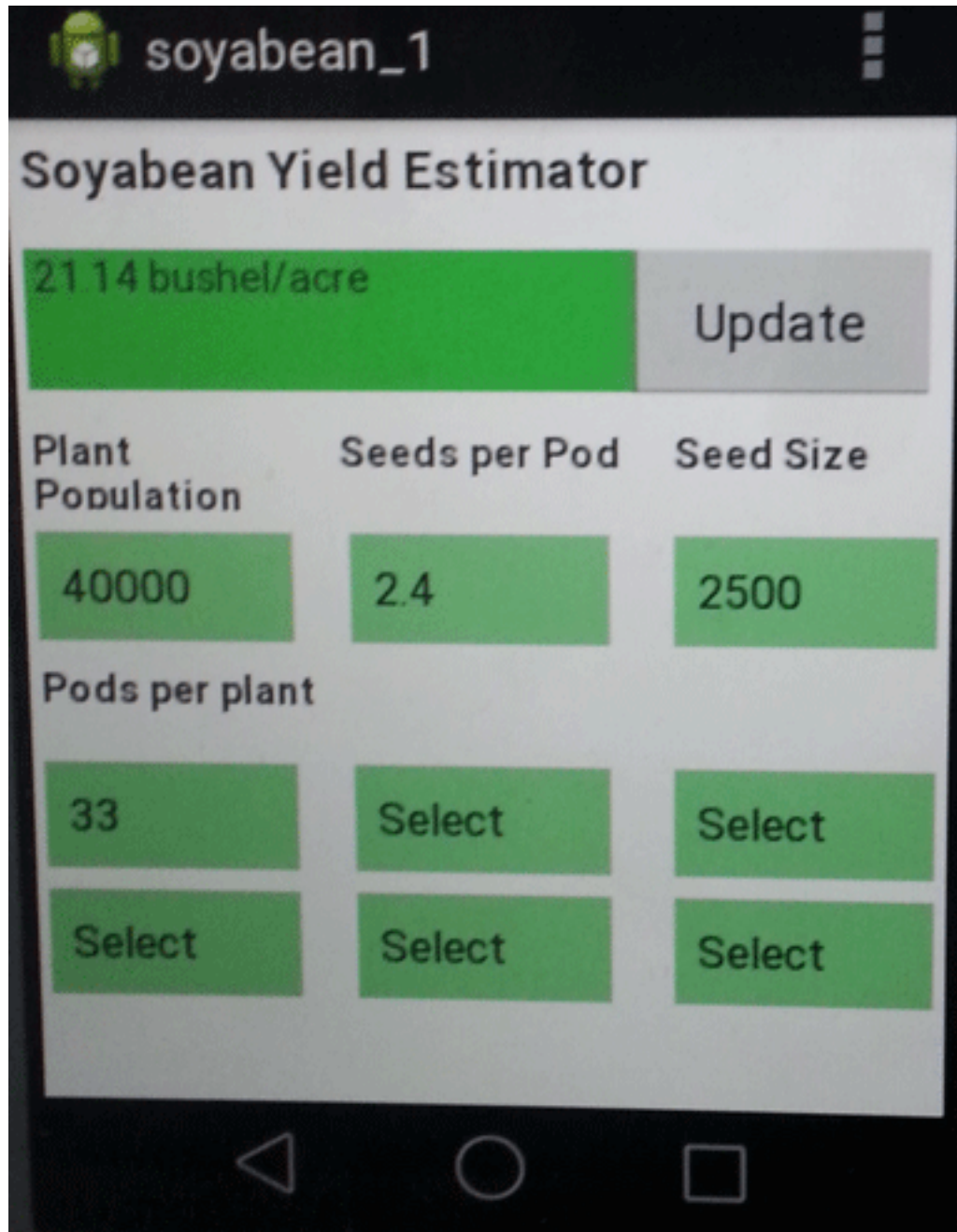
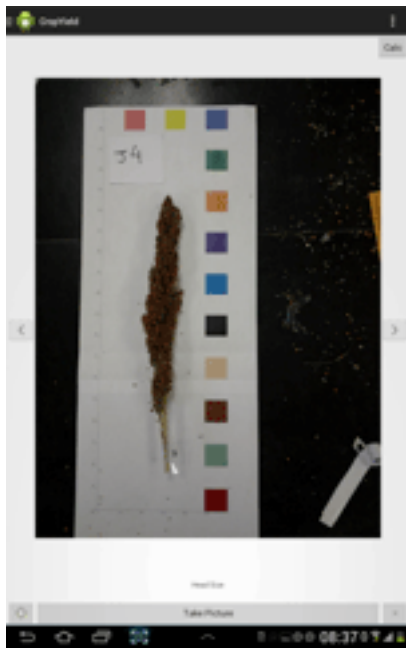


Figure 1. K-State SoyYield Calc App (not yet available).



SorYIELD PREDICTOR



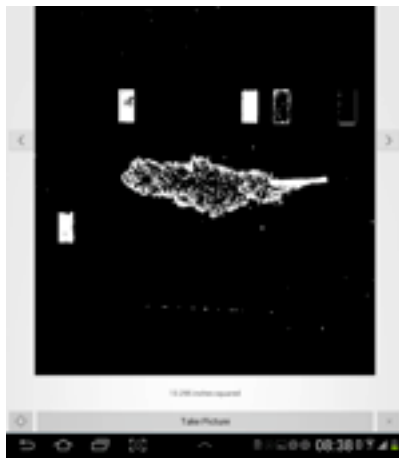


Figure 2. K-State SorYield Predictor App (not yet available).

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12. Cold hardening in winter wheat

Wheat in Kansas has gone through a bit of a roller coaster ride so far this fall and winter.

Temperatures took a sudden dive on November 11 and stayed unusually cold for quite a while. This burned back a lot of topgrowth and shocked the wheat into preparing for winter. Since then, there have been periods of mild weather and moisture – enough that a little new growth of leaves and tillers could be seen in some fields. Where this is the case, is that wheat in condition to survive the winter?



Figure 1. Wheat in northwest Kansas during week of December 15-18. Photo by Jeanne Falk Jones, K-State Research and Extension.

In short, the answer is “probably so.” Where new growth occurred in December, that doesn’t mean the wheat will have lost its winterhardiness. The wheat may not be as cold tolerant now as it could be, however. As long as temperatures are at or below freezing at night, there won’t be much new growth. And the new growth that has occurred can still re-harden.

It helps to know how winter wheat typically survives the winter. Winter wheat is never truly dormant, but it does gradually go through cold acclimation in the fall until it is able to withstand cold temperatures (down to a point).

During the fall, winter wheat seedlings spend the first month or so of their lives developing their first leaves, the crown, and a secondary root system. All the while, the seedlings are building and storing the energy they will need to go through the cold acclimation process and survive the winter. Normally seedlings will need at least 2-3 true leaves and a tiller or two to have built up enough

stored energy reserves to survive the winter. The seedlings will have a better chance of winter survival if their crowns are well developed in firm soil, about a half-inch below the soil surface.

Winterhardiness or cold tolerance is a physiological process triggered by gradually cooling temperatures in the fall. During the process of cold acclimation, certain genes within winter wheat begin to initiate the production of “anti-freeze” type substances to protect the cell membranes.

The process of cold acclimation within a sufficiently developed wheat seedling begins when soil temperatures at crown depth fall below about 50 degrees F. Photoperiod also plays a role in the process of cold hardening, with shorter days and longer nights helping initiate the process. Winter survival depends on the crown remaining alive, and the substances that produce cold acclimation are most needed within the crown.

It takes about 4 to 6 weeks of soil temperatures below 50 degrees at the depth of the crown for winter wheat to fully cold harden. The colder the soil at the depth of the crown, the more quickly the plants will develop winterhardiness.

Cold hardiness is not a static state, however. After the cold hardening process begins in the fall, wheat plants can rapidly unhardened when soil temperatures at the depth of the crown get above 50 degrees. But the plants will re-harden as crown temperatures cool below 50 degrees again. By the time winter begins, winter wheat will normally have reached its maximum level of cold hardiness. Wheat in Kansas normally has its maximum level of winterhardiness from mid-December to mid-January, unless there are high temperatures during that period.

Even during the depths of winter, winter wheat is still respiring and roots may be growing – as long as the ground is not frozen. It is not unusual to find a much more developed crown root system in early February than existed in early December.

It is not unusual to see some green leaves intermingled with straw-colored or pale leaves in the winter. The fact that some of the leaves have some green color does not mean the wheat is not cold tolerant.

Once winter wheat has reached the level of full cold hardiness, it will remain cold hardy as long as crown temperatures remain below about 32 degrees– assuming the plants had a good supply of energy going into the winter.

If soil temperatures at the crown depth rise to 50 degrees or more for a prolonged period, there will be a gradual loss of cold hardiness, even in the middle of winter. The warmer the crown temperature during the winter, the more quickly the plants will start losing their maximum level of cold hardiness. Winter wheat can re-harden during the winter if it loses its full level of winter hardiness, but will not regain its maximum level of winterhardiness.

Even at its maximum level of winterhardiness, winter wheat can still be injured or even killed by cold temperatures if temperatures at the crown level reach single digits. There are varietal differences in winterhardiness. As soil temperatures at the crown level rise to 50 degrees or more, usually in late winter or spring, winter wheat will gradually lose its winterhardiness entirely. Photoperiod also plays a role in this process. When the leaves switch from being prostrate to upright, the plants will have completely dehardened.

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13. K-State Corn Production Management Schools scheduled for January

Schedules have now been set for two K-State Corn Production Management Schools in early January 2015 in northeast and central Kansas. Primary sponsors of the schools include the Kansas Corn Commission and DuPont Pioneer.

The one-day schools will cover several current corn topics relevant to corn producers in Kansas: drought-tolerant hybrids, high-yielding corn factors, weed control, soil fertility, and price and market perspectives.

The schools will begin at 9 a.m. and adjourn at 2 p.m., followed by a tour of facilities. Topics and K-State Research and Extension speakers at each school are:

- Weed control in corn may become increasingly difficult – Curtis Thompson, Weed Management Specialist
- Drought-tolerant technology: Yield benefits? – Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
- Corn markets and profitability prospects – Dan O'Brien, Agricultural Economist
- Cost-efficient corn fertilization in 2015 – Dave Mengel, Soil Fertility Specialist

The dates and locations are:

Jan. 9: Hesston, AGCO building, 420 W. Lincoln Blvd

Local Research and Extension office contacts:

Ryan Flaming, Harvey County, flaming@ksu.edu 316-284-6930

Jonie James, McPherson County, jjames@ksu.edu 620-241-1523

Rickey Roberts, Marion County, rroberts@ksu.edu 620-382-2325

Darren Busick, Reno County, darrenbusick@ksu.edu 620-662-2371

Zach Simon, Sedgwick County, zsimon@ksu.edu 316-660-0153

Jan. 16: Atchison, Atchison Heritage Conference Center, 710 S. Ninth

Local Research and Extension office contacts:

Ray Ladd, Atchison County, cladd@ksu.edu 913-833-5450

David Hallauer, Meadowlark District, dhallae@ksu.edu 785-863-2212

Matt Young, Brown County, mayoung@ksu.edu 785-742-7871

Mindy Young, Doniphan County, myoung5@ksu.edu 785-985-3623

Lunch will be provided, courtesy of the sponsors. There is no cost to attend, but participants are asked to pre-register before Jan. 5 for the Jan. 9 school in Hesston and Jan. 12 for the Jan. 16 school in Atchison.

Online registration is available at K-State Corn Production Management Schools (<http://bit.ly/KSCORNSchools>) or by emailing or calling the nearest local Research and Extension office for the location participants plan to attend.

For more information, contact: Ignacio Ciampitti, K-State Crop Production and Cropping Systems Specialist, ciampitti@ksu.edu 785-532-6940; or Greg Krissek, CEO Kansas Corn, gkrissek@ksgrains.com

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14. Canola College 2015, February 19

Canola College 2015, "Taking Canola Production to the Next Level," will be held February 19, 2015 at the Chisholm Trail EXPO Center, 111 W. Purdue, in Enid, Oklahoma. This conference is sponsored by K-State, Oklahoma State University, Great Plains Canola Association, and partners from the canola industry.

There was excellent participation at the Canola College in 2014 and with the growing interest in and success with the crop, we have every reason to believe that the crowd will be even larger in 2015.

This will be the premier canola education/training event in the region in 2015. Anyone with an interest in canola will want to be part of this event where they will be able to share ideas and experiences with canola experts and more than 300 new and veteran canola producers and industry members.

There will be four concurrent breakout sessions with the following topics covered by experts in their areas:

Ø Basic Production Practices – Mike Stamm, K-State, and Heath Sanders, Great Plains Canola Association

Ø Advanced Production Practices – Bob Schrock, Grower, Kiowa, Kan., and Jay Bjerke, Agronomic Services Manager, Northstar Agri Industries

Ø Canola Economics – Eric DeVuyst, OSU Extension Agricultural Economist and Josh Bushong, OSU Extension Canola Specialist

Ø Soil Fertility and Soil Health – Dr. Brian Arnall, OSU Extension Soil Fertility Specialist and Jason Warren, OSU Extension Soil Management Specialist

Every attendee will have the opportunity to hear from every speaker. In addition, OSU pest management experts Dr. Angela Post (weeds), Dr. Tom Royer (entomology), and Dr. John Damicone (plant pathology) will be available to provide advice and answer questions. They will be located at a special booth convenient for visiting with attendees.

A meal and coffee breaks are being sponsored by members of the canola industry. Time will be allotted on the program for attendees to meet with Canola College sponsors at their booths.

Register for Canola College 2015 at:

www.canola.okstate.edu

Mike Stamm, Canola Breeder

mjstamm@ksu.edu

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15. Kansas weather: December recap and January outlook

December is on track to end wetter and warmer than normal. Temperatures through the 21st of December are averaging 4.2 degrees F warmer than normal. With the precipitation received last week, the statewide average through the 21st is 1.06 inches, or 142 percent of normal. Only the North Central and West Central divisions are below normal. The North Central Division has averaged 0.52 inches for the month-to-date, or 77 percent of normal. The West Central Division has averaged 0.36 inches, or 88 percent of normal.

Kansas Climate Divisions

12/22/2014 Precipitation Summary (in)

21-Day Summary ending on 12/21/14

(Percent of Normal)

Dec 1 - Dec 21

Jan 1 - Dec 21

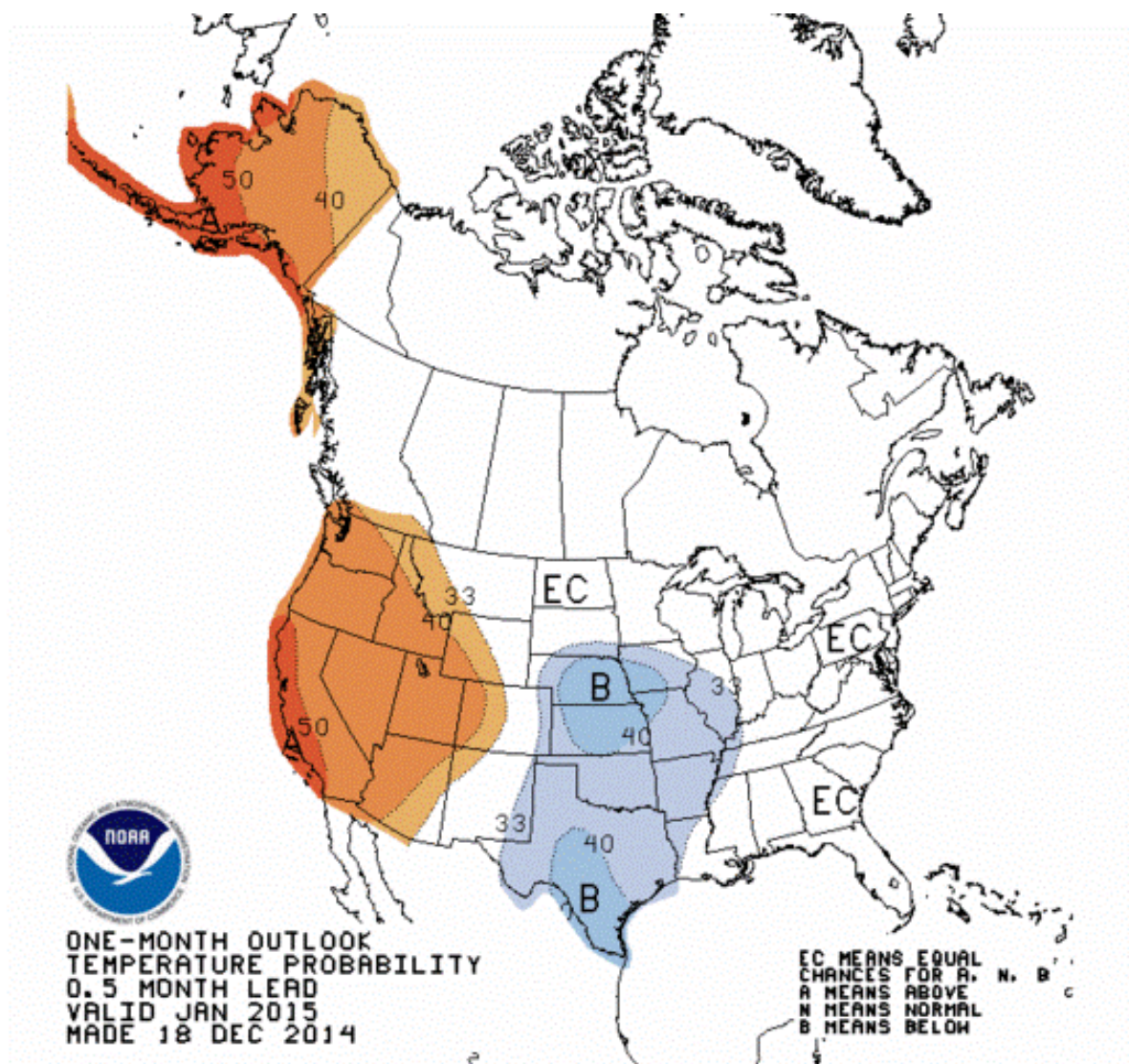
Divisions	Actual	Dep.	%	Actual	Dep.	%	Avg	Dep.	High	Date	Low	Date
North west	0.58	0.19	155	16.63	-4.55	78	33.8	4.2	71	3	3	2
West Central	0.36	-0.05	88	19.67	-0.88	94	35.8	4.7	74	3	5	2
South west	0.87	0.43	186	18.15	-1.53	91	38.5	5.2	70	14	6	2
North Central	0.52	-0.12	77	22.67	-5.1	81	34.3	4.1	65	6	9	2
Central	1.20	0.53	175	25.9	-3.13	89	36.1	3.9	64	5	10	2
South Central	1.20	0.40	152	25.24	-5.76	81	38.2	4.1	63	15	5	2
North east	1.13	0.23	123	28.75	-5.93	82	34.9	4.0	60	15	9	2
East Central	1.77	0.74	168	27.63	-9.92	72	36.0	3.4	63	15	10	2
South east	1.76	0.45	135	31.25	-9.74	75	39.0	3.9	67	1	14	2
Statewide	1.06	0.32	142	23.93	-5.16	82	36.3	4.2	74	3rd	3	2nd

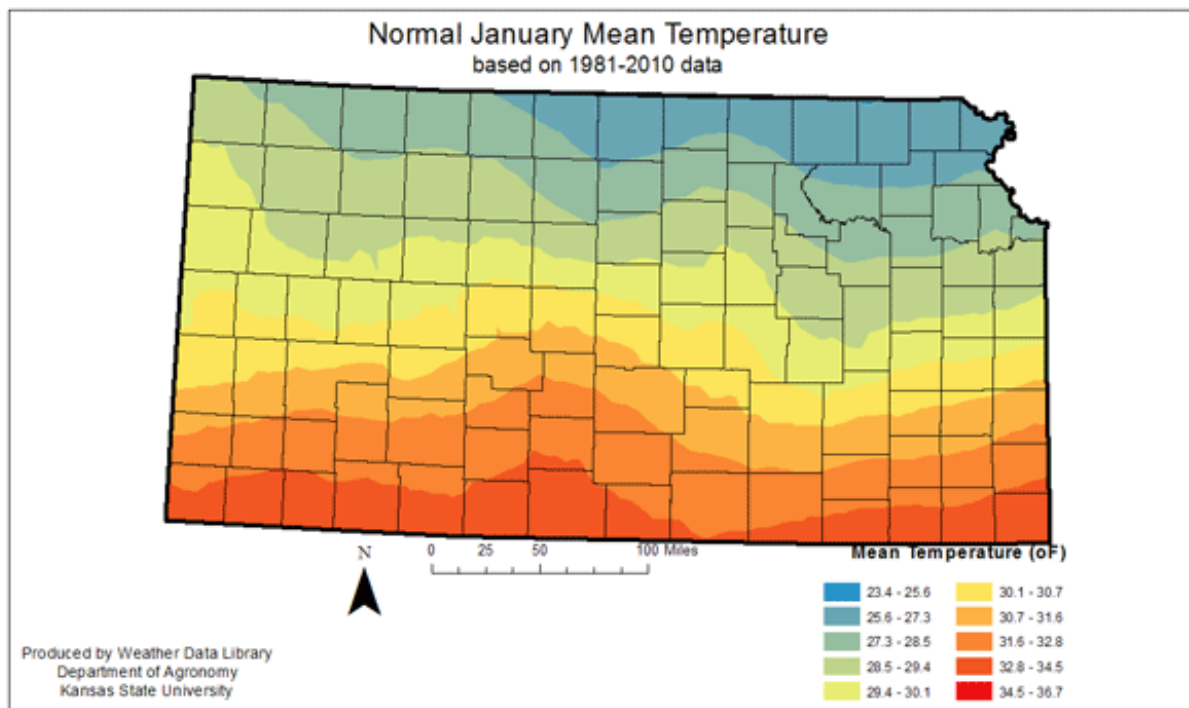
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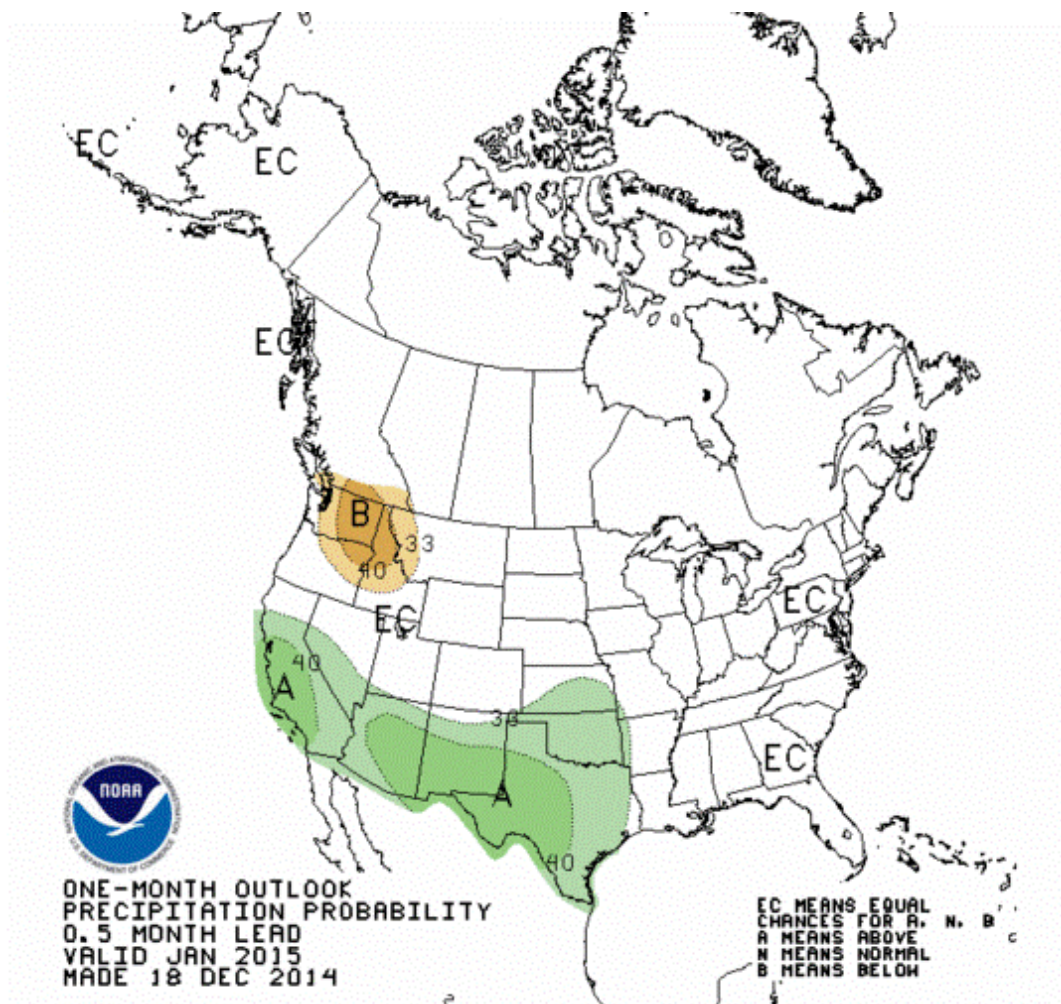
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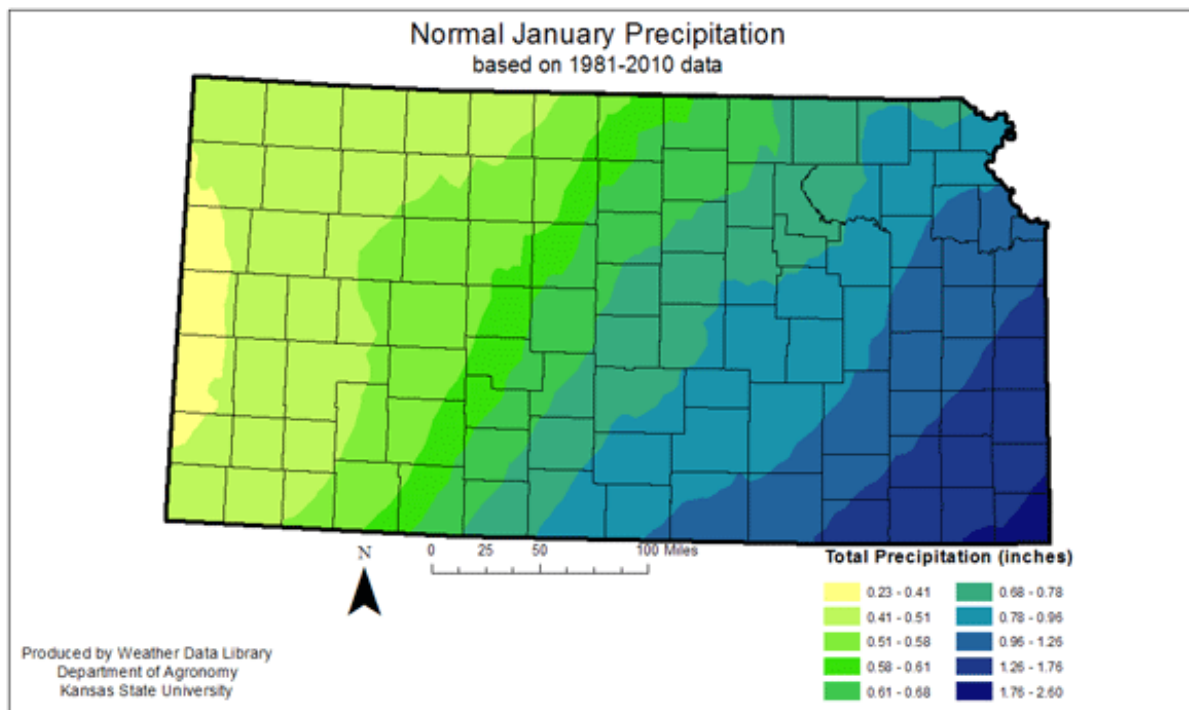
The Climate Prediction Center's January Outlook calls for a shift in patterns. The outlook is for an increased chance of cooler-than-normal temperatures.





For moisture, the outlook is for increased chances of above-normal precipitation across the southern portions of the state.





Of course, these are just outlooks and are for the entire month. It doesn't indicate how great the departures might be nor eliminate the possibility of warmer and drier conditions.

Mary Knapp, Weather Data Library
mknapp@ksu.edu

16. Comparative Vegetation Condition Report: December 2 - 15

K-State's Ecology and Agriculture Spatial Analysis Laboratory (EASAL) produces weekly Vegetation Condition Report maps. These maps can be a valuable tool for making crop selection and marketing decisions.

Two short videos of Dr. Kevin Price explaining the development of these maps can be viewed on YouTube at:

<http://www.youtube.com/watch?v=CRP3Y5Nlggw>

<http://www.youtube.com/watch?v=tUdOK94efxc>

The objective of these reports is to provide users with a means of assessing the relative condition of crops and grassland. The maps can be used to assess current plant growth rates, as well as comparisons to the previous year and relative to the 25-year average. The report is used by individual farmers and ranchers, the commodities market, and political leaders for assessing factors such as production potential and drought impact across their state.

NOTE TO READERS: The maps below represent a subset of the maps available from the EASAL group. If you'd like digital copies of the entire map series please contact Nan An at nanan@ksu.edu and we can place you on our email list to receive the entire dataset each week as they are produced. The maps are normally first available on Wednesday of each week, unless there is a delay in the posting of the data by EROS Data Center where we obtain the raw data used to make the maps. These maps are provided for free as a service of the Department of Agronomy and K-State Research and Extension.

The maps in this issue of the newsletter show the current state of photosynthetic activity in Kansas, the Corn Belt, and the continental U.S., with comments from Mary Knapp, service climatologist:

Kansas Vegetation Condition

Period 50: 12/02/2014 - 12/15/2014

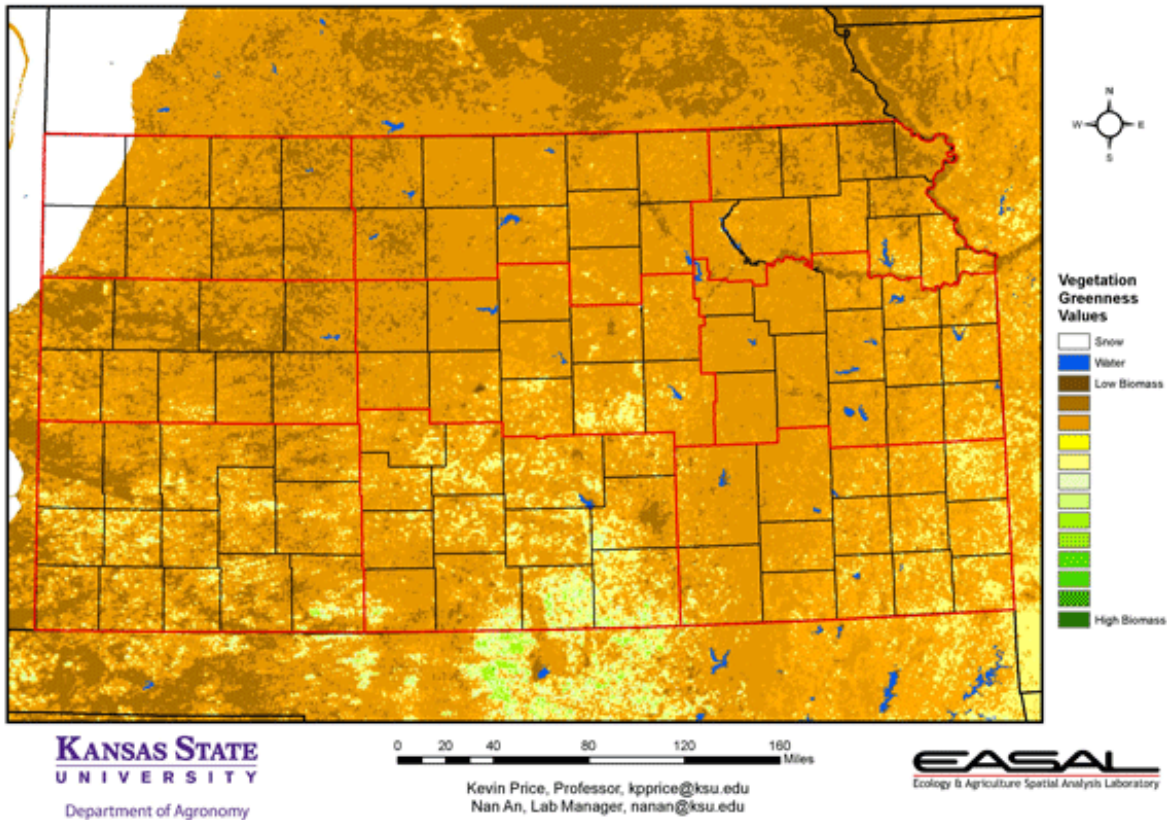


Figure 1. The Vegetation Condition Report for Kansas for December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that only the extreme northwestern portion of the state had snow during the period. The moisture content of the snow was minimal at a trace, or less than 0.01 inches. Other portions of the state had more moisture in the form of rain. Snow from this week’s event will be part of next week’s map.

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Kansas Vegetation Condition Comparison
Early-December 2014 compared to the Early-December 2013

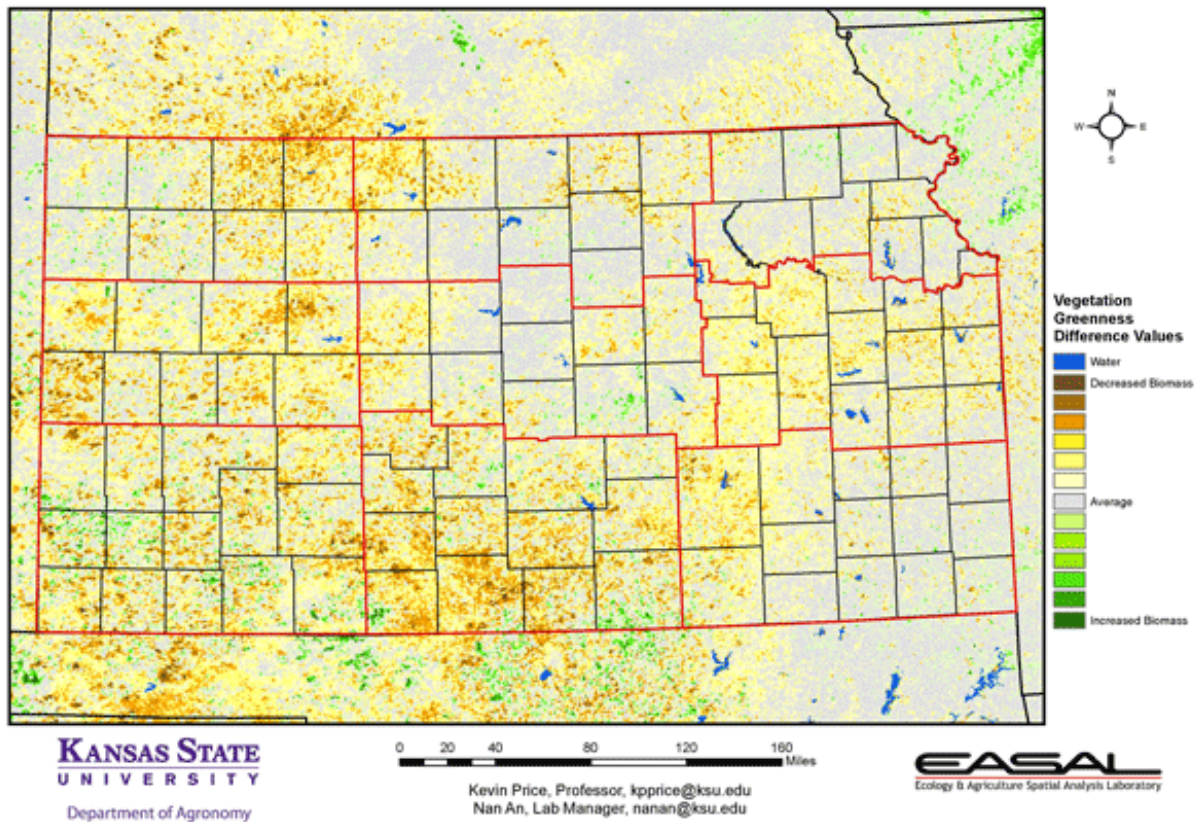


Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that the biggest decrease in photosynthetic activity is centered near Norton and Phillips counties. The abrupt switch from wet conditions in October to dry in November had a negative impact on establishment of winter wheat, and the cold weather in mid-November moved much of the vegetation into dormancy earlier this year.

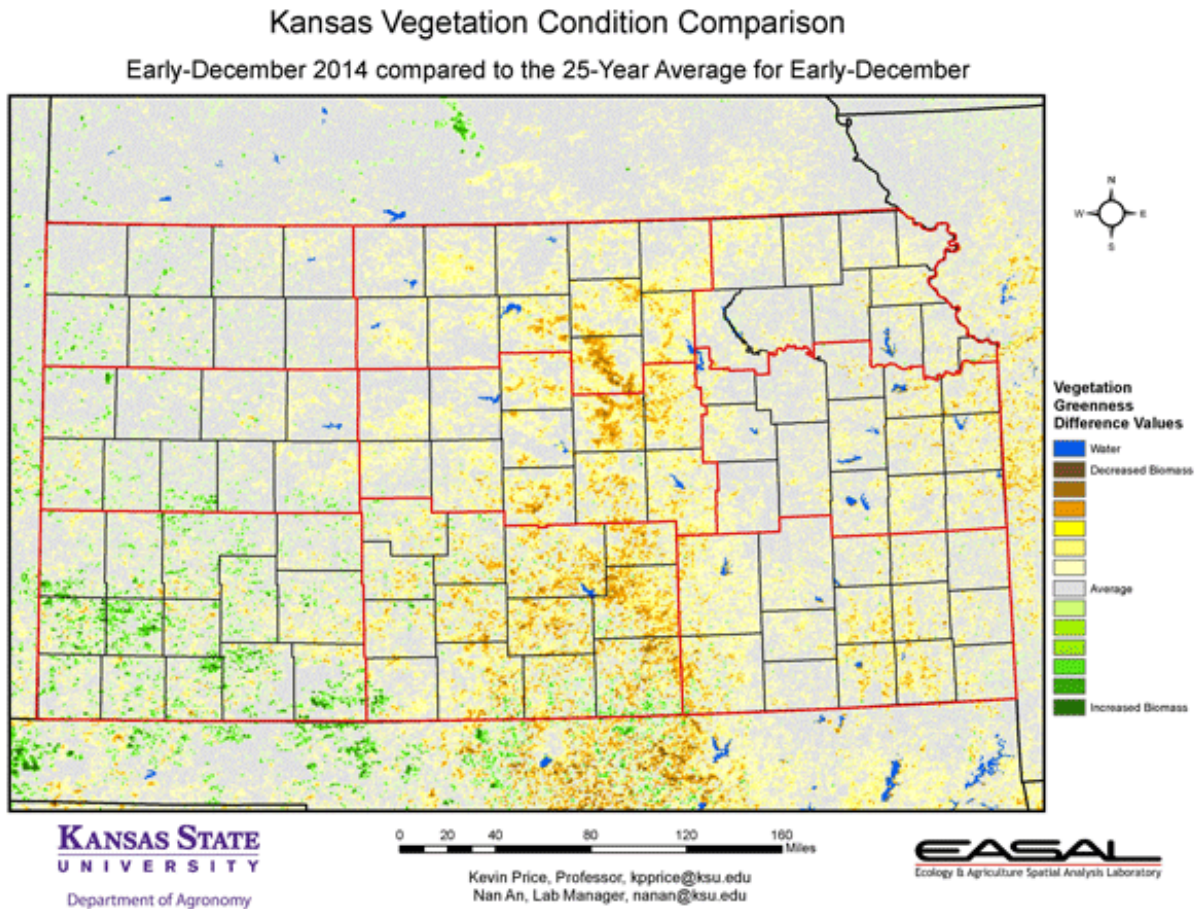


Figure 3. Compared to the 25-year average at this time for Kansas, this year's Vegetation Condition Report for December 2 – 15 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that parts of Ottawa and Saline counties have above-average NDVI readings. Moisture in October and cool November weather delayed planting, and had a negative impact on stand development.

U.S. Corn Belt Vegetation Condition

Period 50: 12/02/2014 - 12/15/2014

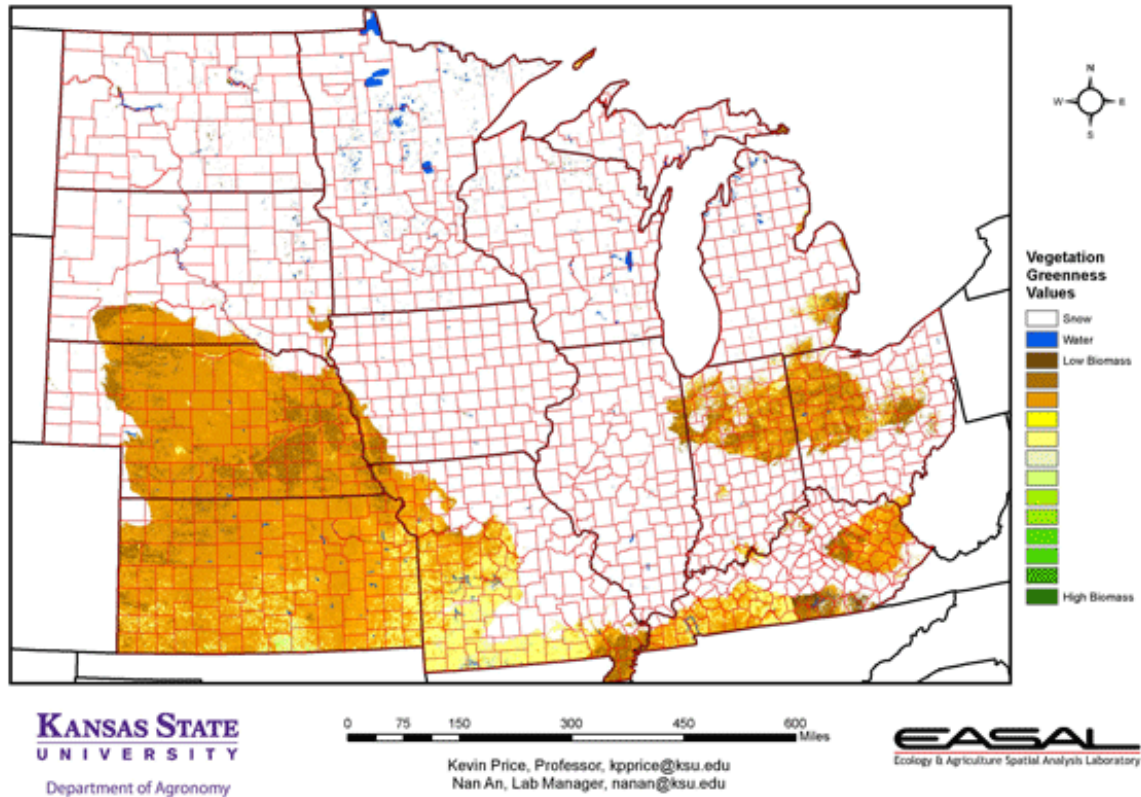


Figure 4. The Vegetation Condition Report for the Corn Belt for December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that while most of the region had snow, the southwest portion missed out. Parts of Kansas did have moisture in the form of rain, particularly the southeastern area of the state.

U.S. Corn Belt Vegetation Condition Comparison
Early-December 2014 Compared to Early-December 2013

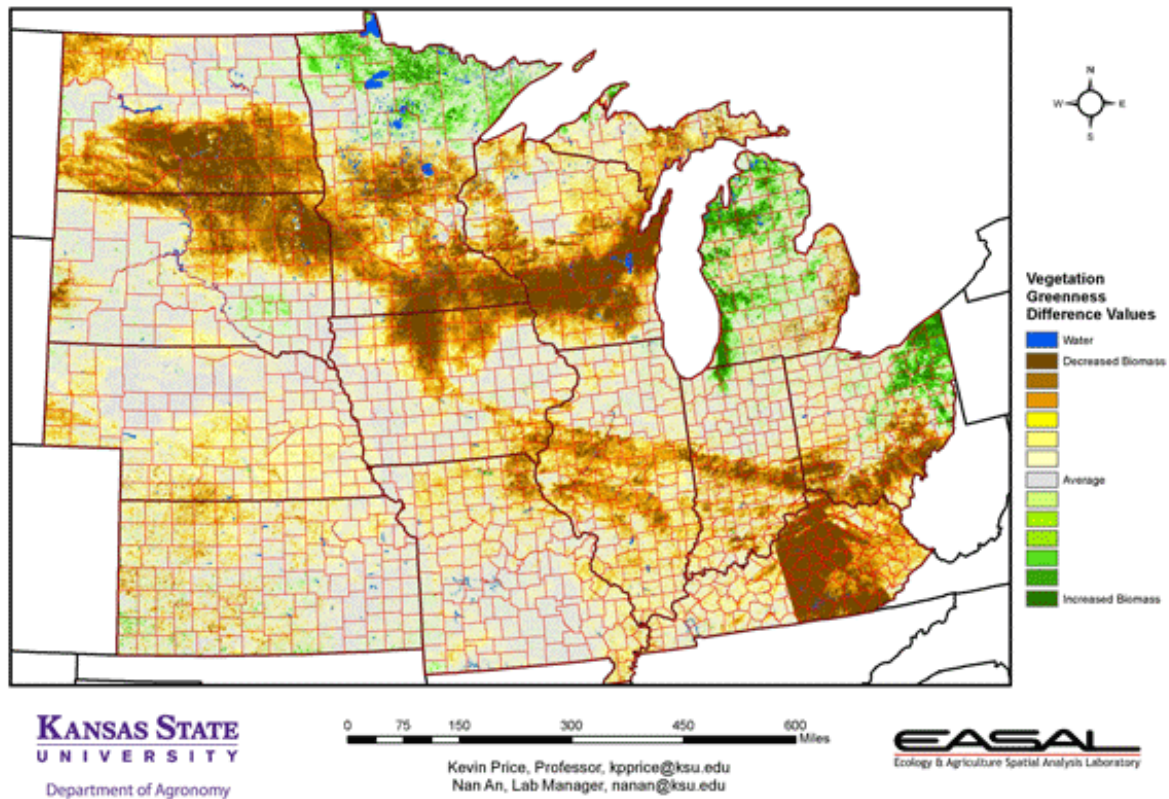


Figure 5. The comparison to last year in the Corn Belt for the period December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that a large band of lower photosynthetic activity is visible from southern North Dakota across Minnesota and Iowa into central Wisconsin. Heavier snow was present in these areas. The band of lower NDVI values across eastern Kentucky is largely an artifact of the splicing technique used to produce the images. Northern parts of North Dakota have missed out on the snow. Fargo is on track for the latest first inch of the season.

U.S. Corn Belt Vegetation Condition Comparison Early-December 2014 Compared to the 25-Year Average for Early-December

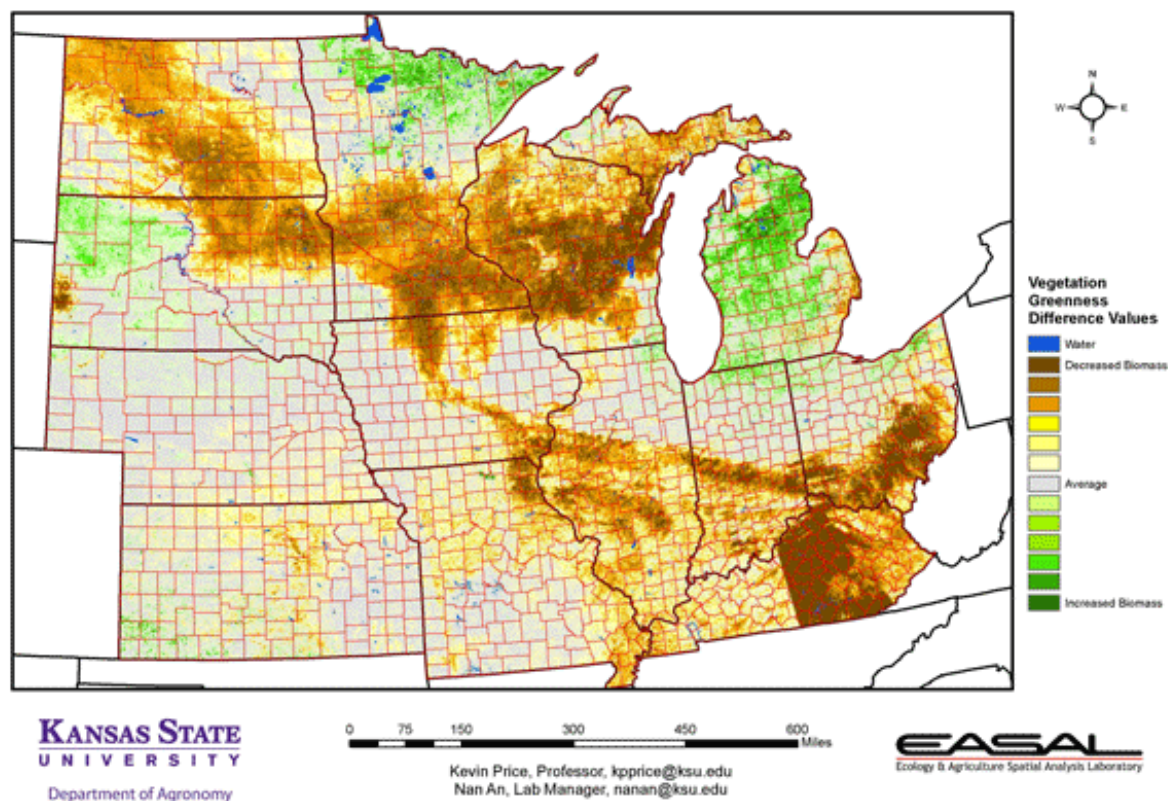


Figure 6. Compared to the 25-year average at this time for the Corn Belt, this year's Vegetation Condition Report for December 2 – 15 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that, while not as pronounced as last year, there is an area of below-average photosynthetic activity from North Dakota through southern Minnesota and central Wisconsin. Snow cover had the biggest impact in southern Minnesota and in Wisconsin. The low NDVI values in eastern Kentucky are due to splicing problems caused by persistent clouds.

Continental U.S. Vegetation Condition

Period 50: 12/02/2014 - 12/15/2014

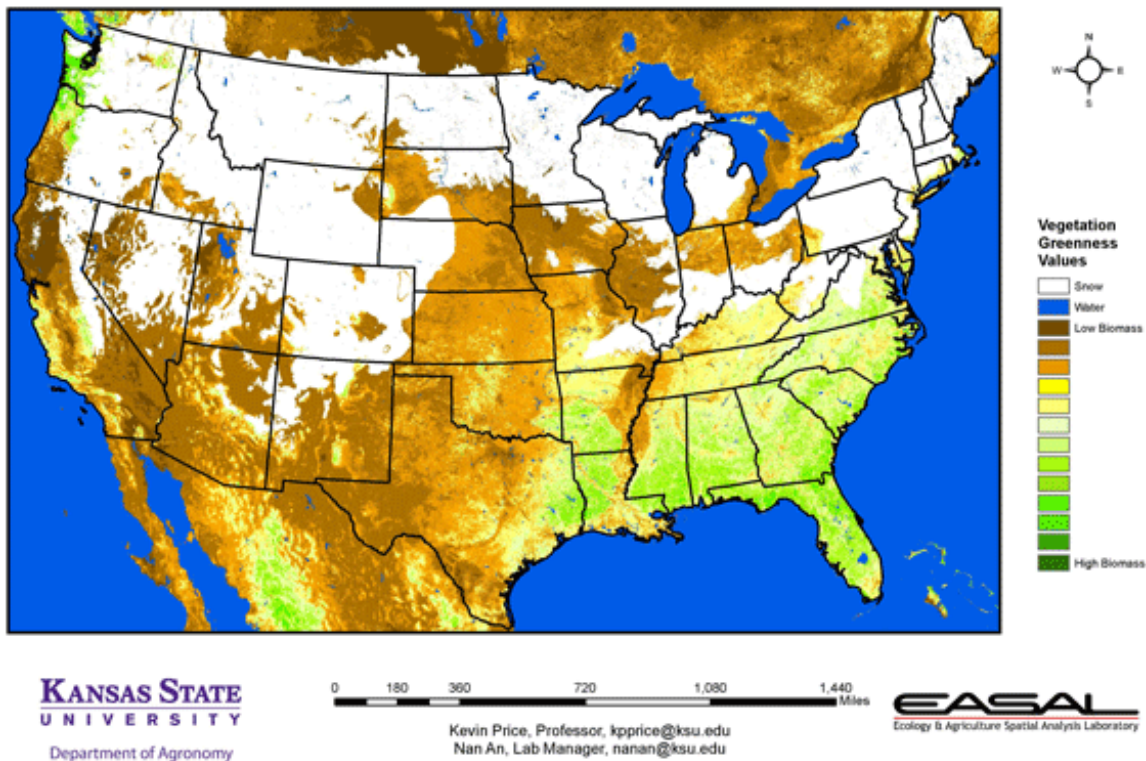


Figure 7. The Vegetation Condition Report for the U.S. for December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that snow cover did not penetrate very far south. Also the snow coverage along the West Coast is confined to higher elevations. The greatest area of photosynthetic activity is in the Pacific Northwest along the coast.

Continental U.S. Vegetation Condition Comparison
Early-December 2014 Compared to Early-December 2013

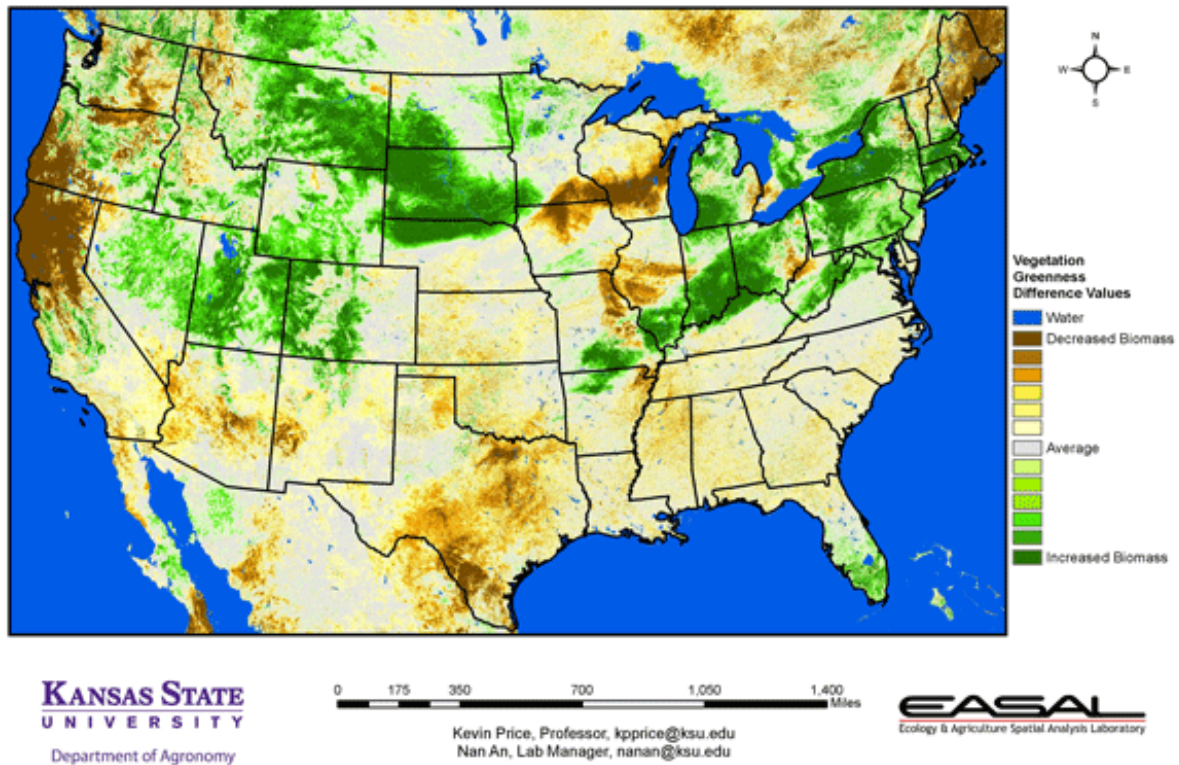


Figure 8. The U.S. comparison to last year at this time for the period December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that greatest decrease in photosynthetic activity is in northern California and upper New England. Much of this is related to persistent cloud cover in these areas, as winter storms continue to exit on the New England side, and develop on the West Coast. Higher NDVI values are visible along the Northern Plains and the Ohio River Valley as snow cover recedes.

Continental U.S. Vegetation Condition Comparison
Early-December 2014 Compared to 25-year Average for Early-December

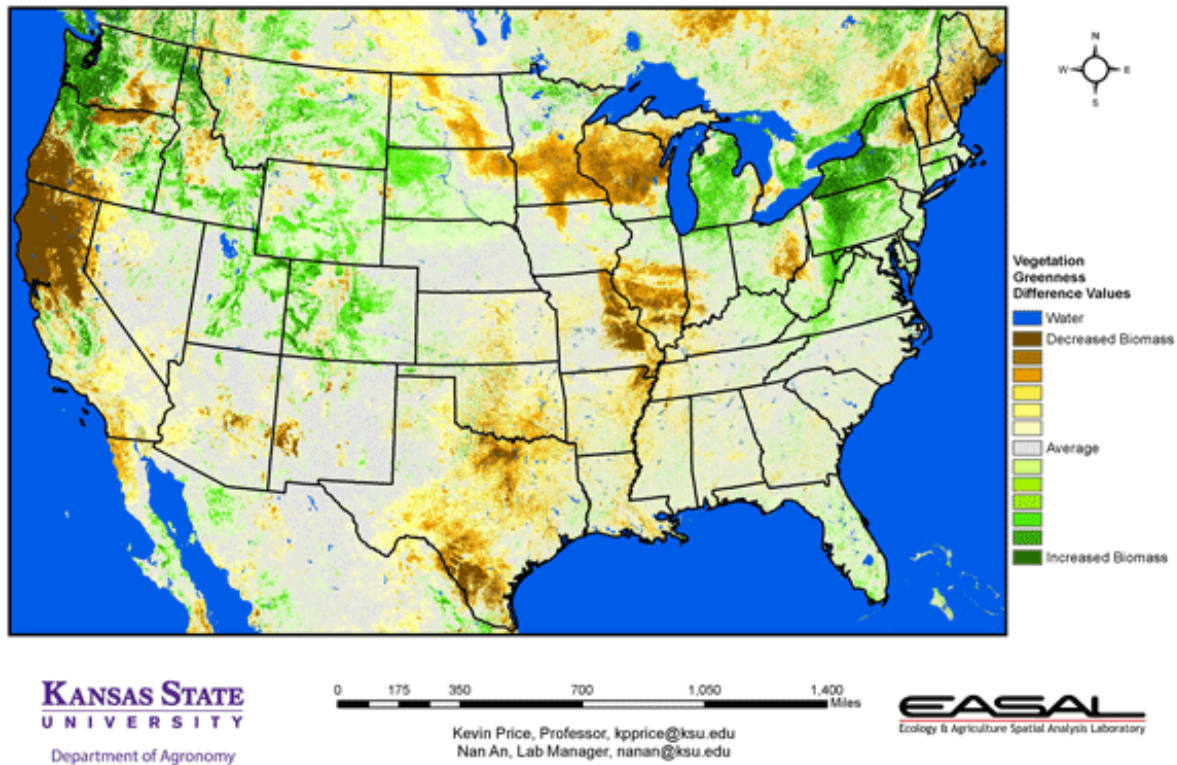


Figure 9. The U.S. comparison to the 25-year average for the period December 2 – 15 from K-State’s Ecology and Agriculture Spatial Analysis Laboratory shows that the more abundant rainfall has produced much-above-average NDVI values along the Pacific Northwest. Persistent clouds have reduced the NDVI values in northern California and upper New England. Lower-than-average snow pack in parts of Colorado continue to show as increased NDVI readings.

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