

PAWNEE COUNTY EXTENSION

AG NEWS

Vol I Issue II

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Fertilizing Spring Flowering Bulbs

The best time to fertilize spring flowering bulbs is when foliage emerges in the spring rather than at flowering. Traditionally, gardeners have applied fertilizer during bloom or a bit after, but because bulb roots start to die at flowering, fertilizer applied at bloom is wasted. Roots are active when the foliage first pokes through the ground.

Nutrients applied then help the plant produce flowers the following year. If bulbs have been fertilized in the past, there are often plenty of phosphorus and potassium in the soil. It is best to use a soil test to be certain. If the soil needs phosphorus and potassium, use a complete fertilizer (such as 10-10-10, 9-9-6, etc.) at the rate of 2.5 lbs. per 100 square feet. This would equal 1 rounded teaspoon per square foot. If phosphorus and potassium are not needed, blood meal makes an excellent fertilizer. It should be applied at the rate of 2 lbs. per 100 square feet or 1 teaspoon per square foot. Lawn fertilizers such as a 27-3-3 or 30-3-3 can be used, but cut the rate by a third. Also make sure the lawn fertilizer does not contain a weed preventer or weed killer.

Remember to leave the foliage until it dies naturally. The energy in the foliage is transferred to the bulb as the foliage dies and will help bloom next year. (Ward Upham-KSRE)

“Agriculture is not crop production as popular belief holds –it’s the production of food and fiber from the world’s land and waters. Without agriculture it is not possible to have a city, stock market, banks, university, church or army. Agriculture is the foundation of civilization and any stable economy...”

- Allan Savory



In This Issue

- How Much Debt Can a Farm Carry?
- Soil Temperature and Vegetables
- Possible Consequences of Warm Winter Temperatures on Wheat
- Agricultural Mobile Apps

How Much Debt Can a Farm Carry?

Michael R. Langemeier
Professor, Agricultural Economics

For a farm business, liabilities are usually divided into two general categories:

1. Current liabilities (less than 1 year) — Loans for feed, fertilizer, supplies, purchased feeder livestock, etc.
2. Noncurrent liabilities (greater than 1 year)— Loans for machinery, breeding livestock, equipment, buildings and land.

A good question often asked is: How much debt can a farm business carry with reasonable safety? Although the question is too general for a specific answer, some guidelines can be provided for certain debts where repayment plans are known.

Numerous factors affect the debt-servicing capability of a farm business. Important factors to be considered when estimating the amount of debt that can be repaid are:

- Income available annually.
- Length of loan repayment period.
- Interest rate.
- Current liquidity and solvency position.
- Stability of income (price and yield stability).
- Skill and experience of operator.
- Age and health of operator.

Cash Flow (Income Available)

Income Available for Capital Replacement and Term Debt Repayment can be used to examine the farm's repayment capacity. This measure should be compared to projected capital and term debt payment needs. A farm with a low amount of income available for these uses will have limited ability to expand their operation or repay term debt.

An example computation of this measure is as follows:

Net Farm Income Operations	\$108,994
+ Total Nonfarm Income	\$ 13,642
+ Depreciation Expense	\$ 33,595
- Taxes Paid	\$ 8,978
- Unpaid Family Labor	\$ 50,945
 Income Available	 \$ 96,308

Length of Repayment Period and Rate of Interest

The longer the repayment period and the lower the rate

of interest, the greater the debt that can be carried by any level of funds available for loan repayment. Table 1 illustrates this fact on the basis of annual principal and interest payments required per \$1,000 borrowed at varying interest rates and number of years.

Table 1. Payments per \$1,000 Borrowed with Equal Annual Principal and Interest¹

Years for Repayment	INTEREST RATE			
	6%	8%	10%	12%
1	\$1,060	\$1,080	\$1,100	\$1,120
3	374	388	402	416
5	237	250	264	277
7	179	192	205	219
10	136	149	163	177
20	87	102	117	134
30	73	89	106	124
40	66	84	102	121

¹Rounded to nearest dollar.

The major factor in determining debt capacity for a farm business is length of the repayment period. For example, given an interest rate of 8 percent for a one-year loan, the total payment required would be \$1,080 per \$1,000 borrowed. However, for a 7-year loan, the annual payment on \$1,000 borrowed at 8 percent would be only \$192.

Table 2 indicates the loan size that can be serviced with \$1,000 receipts available for debt payment each year. For example, given an interest rate of 8 percent, annual receipts of \$1,000 available for debt repayment, and a loan period of 20 years; \$9,818 could be borrowed now and repaid in 20 years with payments of \$1,000 per year.

Table 2. Maximum Debt That Can Be Serviced per \$1,000 Annual Income Available at Various Interest Rates and Loan Lengths

Years for Repayment	INTEREST RATE			
	6%	8%	10%	12%
1	\$ 943	\$ 926	\$ 909	\$ 893
3	2,673	2,577	2,487	2,402
5	4,212	3,993	3,791	3,605
7	5,582	5,206	4,868	4,564
10	7,360	6,710	6,145	5,650
20	11,470	9,818	8,514	7,469
30	13,765	11,257	9,427	8,055
40	15,046	11,924	9,779	8,243

The interest rate makes a large difference in the debt carrying capacity on loans, and becomes very important as the length of repayment period increases. Thus, at 8 percent interest, \$1,000 will service a loan for \$926 if for one year and only a \$893 loan at 12 percent. On a 30-year loan, \$1,000 per year will service a loan for \$11,257 at the 8 percent interest rate, but will service only \$8,055 loan at 12 percent interest.

Liquidity and Solvency Position

Farms with a solid liquidity and solvency position have more flexibility regarding increases in debt levels. A farm with a solid liquidity position has sufficient current assets to cover current liabilities as well as a potential increase in current liabilities. A farm with a solid solvency position has sufficient current and non current assets to cover current debt obligations as well as potential increases in debt levels. More information on liquidity and solvency can be found in Farm Management Guide MF-270, *Financial Ratios Used in Financial Management*. (Please contact the Extension Office if you would like a copy.)

Stability of Income

Income risk varies widely between different farms and enterprises. Price, weather, and disease are all risk factors.

When heavy debt loads are necessary, the operator should reduce risks as much as possible. The greater the weather or price risk for an enterprise, the more conservative the amount of the loan should be. Where insurance can be used to reduce risk, its use should be considered. Also, the greater the risk, the greater the importance of doing the best job possible. When everything is done well and on time, prospects for success are greatly improved, and risk is reduced.

Effect of Skill and Experience

The value of the operator's skill and experience is very important. Superior performance resulting from excellent management may be the most important factor influencing debt carrying capacity. Superior management will cause income prospects to be increased, while the possibility of losses to be reduced.

Age and Health of Operator

These factors are, of course, relative ones. Younger, more ambitious operators, who also have the advantage of good health, can expect to meet fairly heavy debt repayment demands to better advantage than anyone lacking in good health and vigor.

K-State Animal Sciences Leadership Academy 2016

K-State Animal Sciences Leadership Applications are being accepted until April 1, 2016.

Kansas State University will host two sessions of the K-State Animal Sciences Leadership Academy in 2016 for young livestock industry leaders! They will be held June 8-11 and June 29-July 2. This four-day event will focus on increasing young leaders' knowledge of Kansas' diverse livestock industry as well as building participant's leadership skills. Students will stay in university housing with event staff for the duration of the event.

Forty high school students (20 in each session) will be selected to participate based upon educational, community, and agricultural involvement; as well as through an extensive essay application. Applications can be found under the K-State Animal Science Leadership Academy tag on the youth livestock website (www.YouthLivestock.KSU.edu) and must be submitted by April 1, 2016. For more information, please contact academy director, Sharon Breiner at (785) 249-8719 or sharonjbreiner@gmail.com; or contact the Extension Office.

Wheat Plot

Variety Tour

Date: May 23rd

Time: 6 P.M.

Speakers:

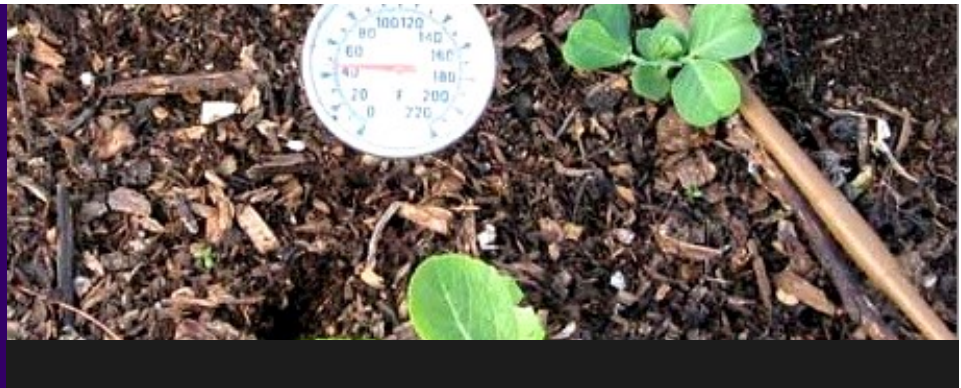
- ◇ Dr. Erick DeWolf, Wheat Specialist/
- ◇ Dr. Sarah Zukoff, SW Area Entomologist
- ◇ Dr. AJ Foster, SW Area Agronomist

Varieties:

- ◇ AP503 CL2
- ◇ Brawl Cl+
- ◇ Byrd
- ◇ Doublestop CL+
- ◇ KanMark
- ◇ LCS Mint
- ◇ LCS Wizard
- ◇ SY Monument
- ◇ SY Sunrise
- ◇ T158
- ◇ WB4458
- ◇ WB Cedar
- ◇ Winterhawk

Location: Between 210th Ave and 220th Ave on H Rd

Variety signs will be posted soon. Feel free to stop by and take a look any time!



Soil Temperature and Vegetables

One of the most neglected tools for vegetable gardeners is a soil thermometer. Soil temperature is a much better measure of when to plant than air temperature or the calendar. Planting when soil is too cool can cause seeds to rot and transplants to refuse to grow.

A number of vegetables can germinate and grow at cool temperatures. For example, peas will germinate and grow well at a soil temperature of 40 F. Though lettuce, parsnips, and spinach can sprout at a soil temperature of 35 F, they prefer at least 45 F for best germination and growth. Radishes also do well at a soil temperature of 45 F. Warm-season crops such as tomatoes, sweet corn and beans prefer at least 55 F for germination (or transplanting), but others such as peppers, cucumbers, melons and sweet potatoes need it even warmer, about 60 F.

Taking soil temperature accurately is a bit of a science. First, use a metal soil thermometer, which is sold in many garden and hardware stores. Take temperature 2.5 inches deep at about 10 to 11 a.m. Temperature variations throughout the day and night affect soil temperature, with lowest readings after dawn and warmest around mid-afternoon. The late-morning reading gives a good average temperature. If taking the soil temperature at this time is not practical, take a reading before you leave for work and a second when you return home and use the average. Also be sure to get a consistent reading for four to five days in a row before planting, and make sure a cold snap is not predicted.

An excellent guide sheet on this subject is published by the Alabama Cooperative Extension System and is titled "Soil Temperature Conditions for Vegetable Seed Germination." It can be found at <http://www.aces.edu/pubs/docs/A/ANR-1061/ANR-1061.pdf> (Ward Upham– KSRE)



Figure 1. Wheat leaf tips damaged by cold temperatures near Hutchinson. Photo by Romulo Lollato, K-State Research and Extension

Possible Consequences of Warm Winter Temperatures on Wheat

The recent period of unseasonably warm temperatures may have producers concerned with the possible effects on their wheat crop. Short vernalization varieties such as Overley, Everest, WB-Cedar, and others, may be released from winter dormancy and may have been growing for a few days during this unseasonably warm period. The consequences of an early greenup on wheat yields will largely depend on spring weather conditions, and a few consequences are discussed below.

1. Physiological impact of a return to freezing temperatures during tillering through jointing

Winter wheat loses some of its winter hardiness each time warm temperatures break its dormancy, although some of its winter hardiness can be regained if temperatures gradually get colder again. The growing point is near the soil surface during the tillering stage and is protected against injury. Most freeze damage at this stage occurs to leaves. The leaves can become twisted and light green to yellow in color, and are burned at the tip within one or two days after freezing (Figure 1). A strong odor of dehydrating vegetation may be present several days after the freeze. Injury at this stage slows growth and may reduce tiller numbers, but growth of new leaves and tillers usually resumes with warmer temperatures.

In the jointing stage, the developing wheat head has started to move up the stem. Even so, wheat at this stage can usually tolerate temperatures in the mid to upper 20's with no significant injury. If temperatures get into the low-20's or lower for several hours, there can be some injury to the lower stems, the leaves, or the developing head. If it is windy during the nighttime hours when temperatures reach their lows, this increases the chance of injury. Most wheat in Kansas should not have reached jointing yet. Our weekly report indicates that none of the 23 wheat varieties tested at the South Central Experiment Field near Hutchinson has reached first hollow stem at this point (as of February, 19th).

Whether actual freeze injury takes place depends on the low temperature reached, how long the temperatures stayed that cold, temperatures gradients in the field, wind speed, canopy density, and other microclimate factors. Soil moisture is another factor that is usually important in determining freeze injury.

One general rule is that producers should not make any quick decisions about the condition of their wheat crop after a freeze. It will take several days of warm weather following the freezes to evaluate the condition of the crop and its yield potential. Even if some of the main tillers are injured or killed, producers should wait to see if enough other tillers have survived to compensate for the lost yield potential.

2. Early use of soil moisture

An early green up means an early use of the much needed stored soil moisture. Wheat generally uses a relatively limited amount of water during the winter months until spring greenup, and water use increases linearly with the increase in biomass from jointing until heading. The larger the wheat's biomass or leaf area, the more water the crop will require to maintain its canopy structure. Greater water use during the winter months will reduce the amount of profile soil moisture for the spring, which might not be a problem in years with sufficient spring precipitation. However, excessive use of the current available water can play against wheat yields if the spring turns out dry.

3. Potential for increased overwintering of diseases

It is still early to know whether the spring weather will favor a stripe rust epidemic (or other wheat leaf diseases) such as the one experienced in most of Kansas last growing season. Mild winter temperatures can increase the potential for a disease outbreak because of increased overwintering of the spores, but this needs to be matched by adequate moisture conditions. Texas and Oklahoma released a few reports of active stripe and leaf rust infections in the past couple weeks, which should put Kansas wheat producers on alert as states to our immediate south are generally the source of inoculum of many leaf diseases in Kansas, including stripe rust and leaf rust. Still, K-State research has shown limited yield response to early season (Feekes 5-6) fungicide applications across most of the state; thus, in most cases it is probably too early at this point to make the decision to spray a fungicide. It is advisable that producers continue to monitor the conditions in the south and actively scout their fields.

(Romulo Lollato, KSRE Wheat and Forages Specialist)

Agricultural Mobile Apps– Part 1

The KSUCROPS Crop Production team and K-State Department of Agronomy is compiling lists of useful mobile apps. This list provides a review and updates of some of the current apps available. These apps can often help you make quick decision in the field from planting to harvest operations, however please be aware that specific information may vary depending on the soil types, yield potential, and environments.

NOTE: These apps are all available as of the time this article is published. Alterations or changes in availability could occur, affecting the ability to access these apps. For a more complete list and direct links to download these apps will be available at <http://www.pawnee.k-state.edu/crops-livestock/index.html>.

For this series of articles, we have grouped Ag-Apps into the following 10 classifications:

ID Apps: For identification purposes (weeds, insects, diseases, and nutrients)

CALC Apps: For calculating purposes (nutrient removal calculations, tank mixes, volume to spray, etc.)

SCOUT Apps: For scouting purposes or for geo-positioning (soil sampling, recording notes, soil types, etc.).

ECON Apps: For checking grain prices, market evolutions, fertilizer price trends, news and finances.

GUIDE Apps: For diagnosing crop production issues in the field, primarily related to field guides (crop management: insect, disease, weed, and more).

LIVESTOCK Apps: Apps related to the animal side, nutrition, health, and information on markets.

IRRIGATION Apps: Apps related to field crop irrigation and water application.


MACHINERY Apps: Apps for associated with agricultural equipment preparation, inventory, providing information of the machine.




GAG Apps: GAG (general Ag-Apps) for general use, weather-related, for meetings, for reading magazines, among several other Apps' properties.

NON-AG Apps: For general use from e-readers to calculators, email, calendar, picture editing, and more.

SCOUTING APPS



(soil sampling, recording notes, soil types, etc.)





Name of App and Source	Brief Description and cost	Available Downloads
<p>eCropScout 2.0</p>  <p>Prairie Farm Club, Inc.</p>	<p>This app is designed to be used by crop consultants, farmers, seed dealers, agronomists, and Ag Professionals to deliver real-time crop condition maps.</p> <p>FREE</p>	<p>Android</p>

Name of App and Source	Brief Description and cost	Available Downloads
<p>SoilWeb</p>  <p>CA Soil Resource Lab</p>	<p>This app retrieves official soil series descriptions and summaries of soil types associated with the current geographic location.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>iCropTrak</p>  <p>ScanControl</p>	<p>This app is user customizable, capable collecting and editing vectors, drone imagery, equipment, and more. It is a consultant in your pocket.</p> <p>\$1-5</p>	<p>iOS</p>
<p>AgPlots</p>  <p>August Knecht</p>	<p>This app offers a simple method of calculating and storing grain yields for your corn, soybean, and wheat plots. Simply punch the numbers into your phone to compare and save.</p> <p>FREE</p>	<p>iOS</p>

ID APPS


(weeds, insects, diseases, and nutrients)




Name of App and Source	Brief Description and cost	Available Downloads
<p>Ag Weed ID</p>  <p>Farm Progress</p>	<p>Weed identification for corn, cotton, rice, sorghum, soybeans, and wheat (75 weeds).</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>Federal Noxious Weeds Key</p>  <p>U. S. Department of Agriculture</p>	<p>This app is a useful resource for seed professionals and anyone with an interest in, or a need to know about, noxious weeds.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>

Name of App and Source	Brief Description and cost	Available Downloads
<p>Aphid Speed Scout</p>  <p>University of Nebraska-Lincoln</p>	<p>Quick and easy approach to measure aphids.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>Dupont Pestbook</p>  <p>DuPont</p>	<p>Designed to simplify identification of pests and beneficial insects in your fields.</p> <p>FREE</p>	<p>iOS</p>
<p>DEPI Crop Disease</p>  <p>DEPI Crop Disease</p>	<p>The DEPI Crop Disease app provides quick access to current disease resistance ratings and an extensive disease image library.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>Yara CheckIT</p>  <p>Yara International</p>	<p>This app gives farmers a photo library to allow a simple and fast ID of possible nutrient deficiency. Then it gives further information on how the deficiency affects that crop.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>

CALCULATOR APPS

(nutrient removal calculations, tank mixes, etc.)

Name of App and Source	Brief Description and cost	Available Downloads
<p>Fertilizer Removal by Crop</p>  <p>AG-PHD</p>	<p>Select your crop and the desired yield for that crop, and you will be given the amount of vital crop nutrients that your desired yield will need.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>

Name of App and Source	Brief Description and cost	Available Downloads
<p>Kansas Wheat Yield Calculator</p>  <p>Kansas Wheat Alliance, Inc.</p>	<p>This app lets producers collect information about their winter wheat fields and gives an assessment of potential yield prior to harvest.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>Harvest Loss Calculator</p>  <p>AG-PHD</p>	<p>Select your crop and input the number of seeds/kernels you count on the ground per sq. ft. to get a harvest loss calculation.</p> <p>FREE</p>	<p>iOS</p> <p>Android</p>
<p>Tank Mix</p>  <p>DuPont</p>	<p>This app allows you to easily calculate the amount of product needed to treat a specific field area, with a specific tank size, for correct volume-to-volume ratio.</p> <p>FREE</p>	<p>iOS</p>

Master Gardener



The Master Gardener program is a volunteer program in which K-State Research and Extension "trades" classroom training for volunteer time. Training consists of 40 to 50 hours of instruction in all aspects of horticulture. Instructors include state specialists from Kansas State University, local extension agents and local experts in specific subject matter. After training is completed, volunteers donate an equivalent number of hours of service as was received in instruction. Service activities are coordinated by the local county extension agent. Though volunteer activities vary widely, all are educational, extension related and represent the interests of K-State Research and Extension.

Master Gardeners have become a vital part of the University's ability to provide accurate, up-to-date and research based information to our clientele. Volunteer time during the year 2014 totaled 101,040 hours with an average of 80 hours donated per volunteer. This is equivalent to 48 full time extension staff positions and is estimated to be worth \$2,109,130.

Free publica- tions available in the office

-2016 Chemical Weed Control

-2015 Kansas Performance Tests with Grain Sorghum Hybrids

-2015 Kansas Performance Tests with Corn Hybrids

-2015 Kansas Performance Tests with Winter Wheat Varieties

-2015 Kansas Performance Tests with Soybean Varieties

-2015 Farmer's Tax Guide

-Kansas Wheat Commission 2015 Recipe Book

Market Wheat Show

The Market Wheat Show will continue in 2016.

You will be able to drop off the 1 gallon bag sized entries at participating elevators. More information to follow in the May newsletter.



Calendar of Events

Meeting dates have slowed, but we do have a couple of great things to look forward to this spring.

March

23rd: Kansas Property Tax Webinar

No fee, register at <https://ksu.zoom.us/webinar/register/52ce0d1cc4e9c5fedc2040ba88984b7b>

If you need any help, or would like a recording, please contact Pawnee County Extension, 620-285-6901

April

2nd: Women on the Farm, Larned, 9 am– 2pm, RSVP by March 28th to Pawnee County Extension or Kathie Rondeau at NRCS

6th: Kansas Land Values Webinar

Website is not currently posted, if interested please contact Pawnee County Extension, 620-285-6901

May

23rd: Wheat Plot Variety Tour, Larned

See side panel on page 4

June

3-4th: Ag Women of the Heartland 2016, Garden City

More information to come

The Extension Office is open from 8:30 a.m. to 12:00 noon and 1:00-5:00 p.m. The office will “normally” be closed over the noon hour. However, we realize these hours may not coincide with everyone’s schedules. Give us a call and we will do our best to work with your schedule.

Sincerely,
Shannon Rogge
County Extension Agent,
Agriculture and Natural Resources

Kansas State University Agricultural Experiment Station and Cooperative Extension Service is committed to making its services, activities, and programs accessible to all participants. If you have special requirements due to a physical, vision, or hearing disability, or dietary restriction, please contact the Pawnee County Extension Office at 620-285-6901 or pn@ksre.ksu.edu. K-State Research and Extension is an equal opportunity Employer.

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