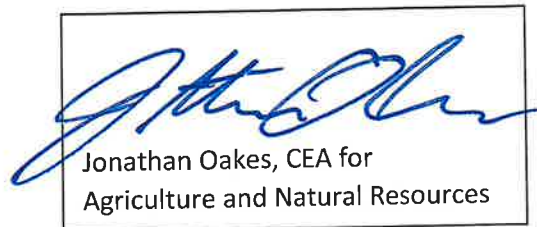


Russell County Agriculture and Natural Resources Nov.-Dec. Newsletter



Forage Timely Tips: November

Posted on October 31, 2023 in Kentucky Forage News

- Apply 30-40 lbs/N/acre to strengthen cool-season grass sods going into winter.
- If not already done, inventory hay and assess hay quality.
- Using a plate meter or grazing stick, estimate stockpile available for winter grazing.
- Adjust animal numbers or purchase additional hay to balance forage-feed supply to livestock needs.
- Graze crop residues and cover crops that will not overwinter. Be careful to avoid fields that contain johnsongrass that have recently frosted.
- Graze winter annuals that will not overwinter such as brassics and oats.
- Graze other winter annuals once they are 6-8 inches tall and are well anchored. Do NOT graze closer to 4 inches.
- Sugar content will rise in tall fescue with the cool temperatures and short days of fall. Alkaloid content of tall fescue can also be high in certain years, but will begin decline after a hard freeze.
- Talk with local conservationist about developing a grazing plan and cost-share opportunities.

Forage Timely Tips: December

Posted on December 1, 2022 in Kentucky Forage News

- Begin utilizing stockpiled pastures. Graze pastures with orchardgrass and clovers first. Save tall fescue pastures for late winter grazing.
- Using polywire, strip graze stockpiled pastures to improve Utilization. Start at the water source and allocate enough forage to for 2-3 days. Back fencing is not necessary since pastures are not regrowing this time of the year.
- Make plans to frost seed red and white clover onto closely grazed tall fescue pastures in February. Seed supplies of improved varieties may be tight.
- Begin hay feeding as stockpiled forage is used up.
- Supplement hay with commodity feeds as needed.
- Minimizing waste by utilizing ring feeders.

Spotted Lanternfly Has Arrived in Kentucky

Posted on **October 31, 2023** By Jonathan L. Larson, Entomology Extension Specialist

The spotted lanternfly (aka SLF) is the newest invasive species that has found its way to the Bluegrass State. In early October, a homeowner in Gallatin County noticed the adult form of this insect on their property and worked with their local county Extension agent to submit photos to reportapest@uky.edu. Thanks to this, the Kentucky Office of the State Entomologist was able to visit the site and collect specimens to submit for federal confirmation, officially certifying an infestation. Thus far, no other county has reported lanternflies. As with all invasive species, the spotted lanternfly causes trouble in the areas that they move in to, and Kentuckians should expect to see this pest more frequently in the coming years.

What is the Spotted Lanternfly?

SLF is very distinctive in appearance.; the adult is about an inch long, with strikingly patterned forewings that mixes spots with stripes. The back wings are contrasting red, black, and white. The immature stages are black with white spots and develop red patches as they age. They are a type of planthopper; they are capable of jumping and can be quite fast.

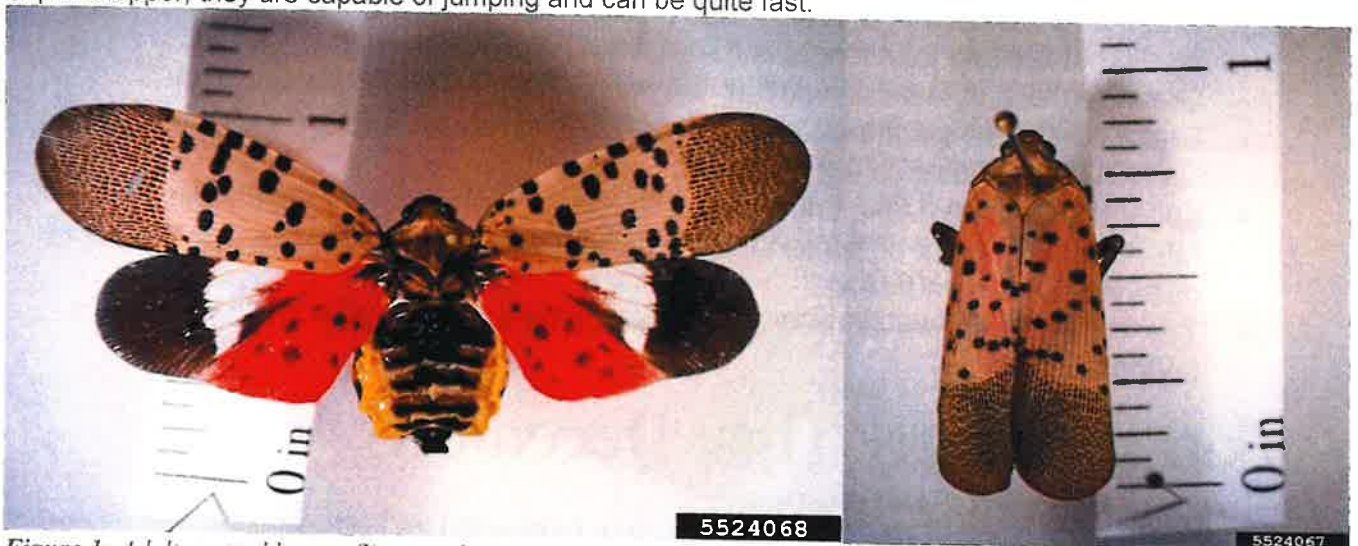


Figure 1: Adult spotted lanternflies are distinct looking insects; their fore wings are half spotted and half reticulated, while the back wings are a mixture of black, white, and red. On the left, the wings are open and showing all of the color; on the right is how the insect is most likely to be encountered– with the wings closed over its back (Photos: Pennsylvania Department of Agriculture. Bugwood.org).

Spotted lanternflies develop through a process called incomplete metamorphosis. This means that the female lays eggs, which will hatch to reveal "nymphs," immature insects that vaguely resemble the adult. They gradually get larger during the growing season, eventually developing their wings and becoming adults. SLF starts off black with white dots, and then before becoming adults, develop red markings.

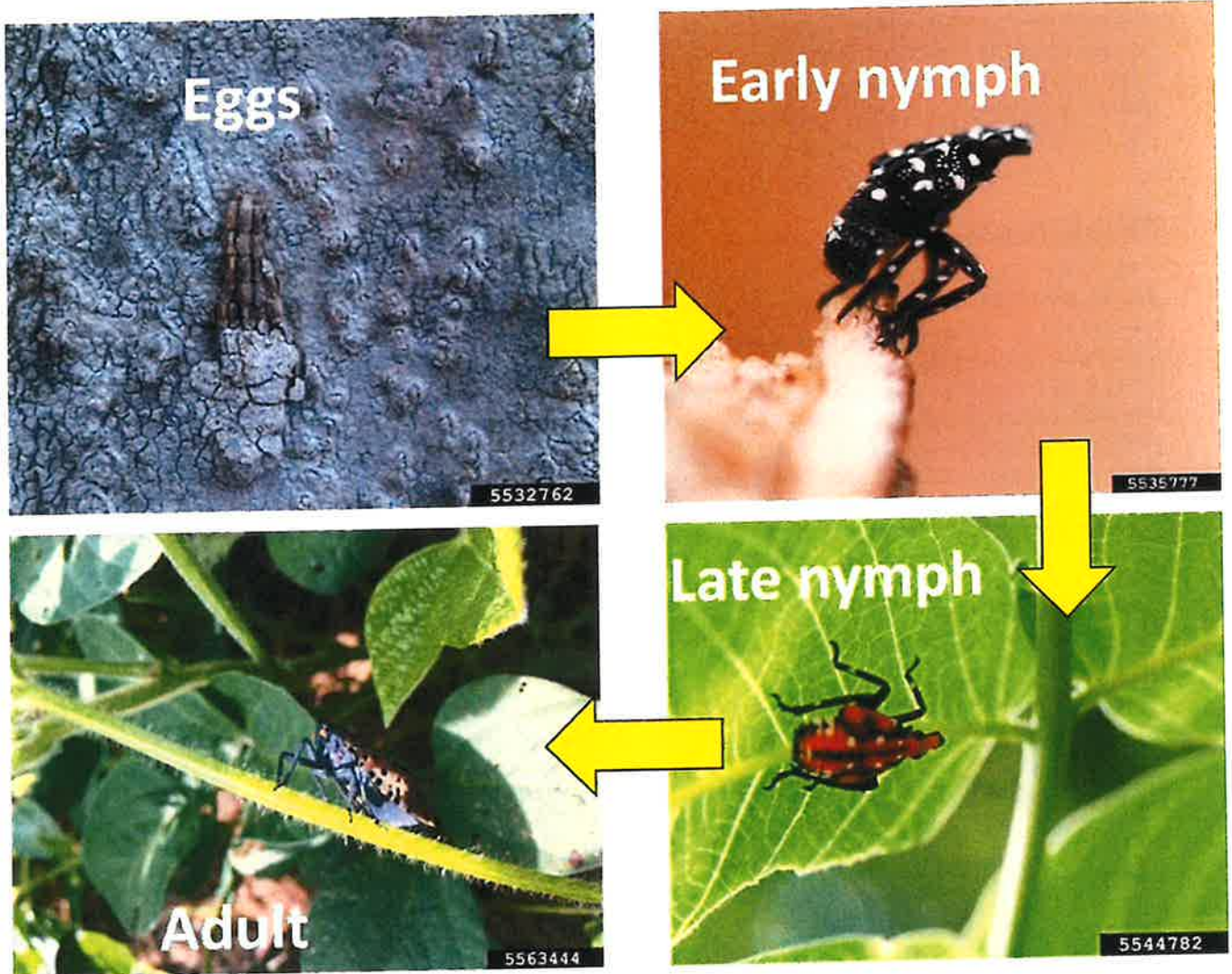


Figure 2: Spotted lanternflies start as eggs, which look like they are covered with brown-grey spackle, and then they develop through spotted nymphal stages before maturing into the adult form (Photos by Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org).

How did it get to Kentucky?

The spotted lanternfly is a non-native insect that is from East Asia. The first confirmed infestations were found in Pennsylvania in 2014. Following that discovery, the pest has steadily made progress in infesting other states, such as New Jersey, Ohio, Delaware, New York, Connecticut, Maryland, and West Virginia. In 2021, an infestation was confirmed in Switzerland County, Indiana (directly across the Ohio River from Gallatin County, Kentucky). Further movement in Indiana has been confirmed in 2022 and 2023. In 2022, there was also confirmation of SLF in Cincinnati, OH, with the problem growing in 2023.

In late summer of this year, sites of SLF were confirmed in Illinois and Tennessee, as well. Just when it seemed that the insect might be in every state that touches Kentucky (but not actually in

Kentucky), the local infestation was also discovered. Thus far, the number of insects discovered in Kentucky doesn't rival the infestations you might see images of online or in news reports from states in New England. It is possible that the Gallatin County population arrived via natural movement from Indiana. SLF can jump and fly, and their natural spread can take them 3 to 4 miles from an infested site in a given year. It is also possible that they were accidentally brought into the state on infested goods or on a car, truck, or other means of transport.

What does it do?

This pest is known to feed on more than 70 plant species, including specialty crops like grapes, apples, peaches, and hops, as well as trees such as maple and black walnut amongst other hardwoods, and fruit crops. Their preferred host for a portion of their life cycle is the tree of heaven (another non-native/invasive species). SLF is classified as a true bug, part of the order Hemiptera. They feed using piercing sucking mouthparts. As they feed, they excrete honeydew, a sugary fecal material that accumulates on nearby plants and surfaces and can attract black sooty mold fungi. Honeydew can also be slippery for people and unfortunately can attract stinging insects looking to feed on it. Another unique problem is that beekeepers near SLF infestations report that their bees will forage so heavily on the honeydew that they end up with honey made from SLF fecal material rather than nectar.

Finally, females lay their eggs on natural and unnatural surfaces alike. Eggs are being laid right now as autumn settles in, and they will overwinter in that stage. While they use trees, the cryptic and hard-to-see egg cases have also been found on automobiles, trains, lawn furniture, firewood, stones, and many other substrates. It's possible that Kentuckians who travel to Gallatin County or to Cincinnati, OH could pick up hitchhiking female lanternflies that will come back to un-infested parts of Kentucky and lay eggs there.



Figure 3: Spotted lanternflies feed on tender growth as nymphs before moving on to feed on the trunk and branches of trees as these bugs get larger and stronger (Photo by Emelie Swackhamer, Penn State University, Bugwood.org).



Figure 4: A mass of spotted lanternfly eggs has been laid on this vehicle. The eggs will hatch the following spring if not removed (Photo courtesy of WPMT Fox 43).

What can people do to help?

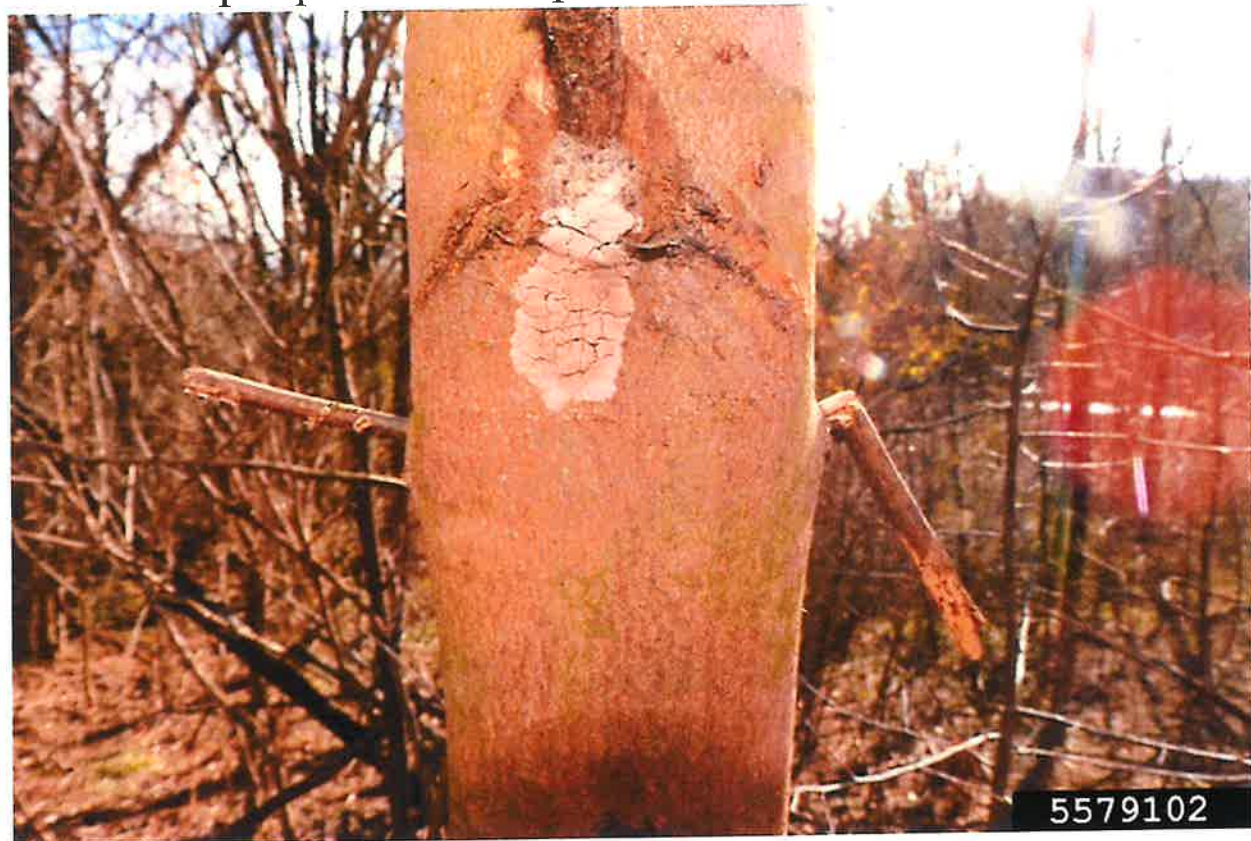


Figure 5: Be on the lookout for the weird looking adults and for the egg masses spackled onto surfaces, as seen here. Don't bring home any unwanted hitchhikers and help us by reporting odd sightings! (Photo by Richard Gardner, Bugwood.org)

Kentuckians should be on the lookout for this pest. Report suspicious looking bugs and egg cases to the Office of the State Entomologist at reportapest@uky.edu. When making a report, please include an image or a sample of the suspect, otherwise it will be difficult to confirm the problem. It is also important to include geographic information. It is true that this is a difficult pest to eliminate, but with the help of citizens monitoring for populations, there is hope that their spread can be slowed to allow communities more time to prepare.

Spotted lanternfly lookalikes

While SLF is unique looking, there are some insects that resemble it!



Some moth species have similar looking under-wings. They will be fuzzy and lack the other designs SLF has.



Ornate bella moth

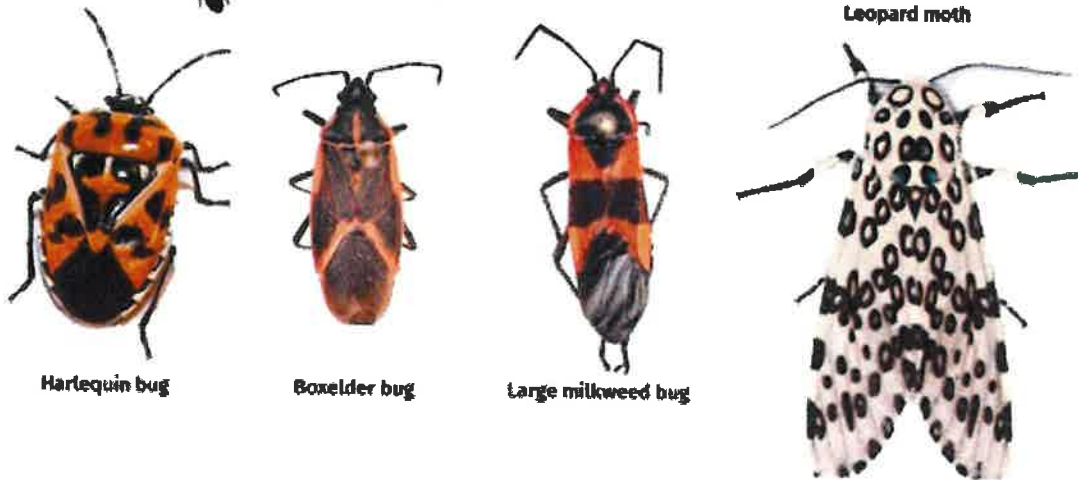
White lined sphinx moth

Pink underwing moth



Ailanthus webworm moth

Other insects may have spots or stripes but not quite the same mixture as the SLF.



Harlequin bug

Boxelder bug

Large milkweed bug

Leopard moth

Figure 6: While the SLF is a unique looking insect, there are some other species that can be mistaken for it at a quick glance. These are just a few that have been submitted to the University of Kentucky over the last year (Photo: University of Kentucky Department of Entomology).

UK Martin-Gatton
College of Agriculture,
Food and Environment

PULASKI & RUSSELL COUNTY



COOK WILD

PULASKI CO.: DEC. 8TH, 6 PM EST
RUSSELL CO.: JAN. 8TH, 6 PM CST

FOOD/ FUN/ FELLOWSHIP

EVENT DETAILS

Come sample 4-5 of our cook wild recipes and experience something new.

You must RSVP and pre-pay to attend.

\$10 per person (to attend either 1 or both events)

Maximum of 20 people

RUSSELL COUNTY
EXTENSION OFFICE

2688 S. HWY 127
RUSSELL SPRINGS, KY
PH: (270) 866-4477

**Cooperative
Extension Service**

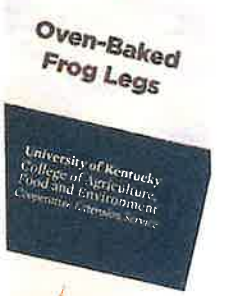
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or receipt or receipt of assistance for prior civil rights activity. Reasonable accommodations of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating. Lexington, KY 40506



Disabilities
accommodated
with prior notification.



ESTATE PLANNING/ TRANSITION

Are you ready?



Estate state planning can be a complicated process.



Come learn more about estate planning from U.K. Specialists, local attorneys, and CPAs.



- These classes are **FREE**
- A meal will be provided
- **RSVP is required.** Please call 270-866-4477 to save your spot

MARCH 18TH 5:30 PM
MARCH 21ST 5:30 PM

📍 2688 S. HWY 127, Russell Springs, KY 42642

☎ (270) 866-4477

🌐 russell.ca.uky.edu

Cooperative
Extension Service

Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, social education, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English.
University of Kentucky, Kentucky State University, USA Department of Agriculture, and Kentucky Chapter, Cooperative Extension, KY 40306



Disability
accommodated
with prior notification



Economic & Policy Update

E-newsletter Volume 23, Issue 10

Editors: Will Snell & Nicole Atherton



Department of Agricultural Economics
University of Kentucky

OCT
2023

What to Consider When Renting Out Your Farm

Author(s): Michael Forsythe

Published: October 30th, 2023

According to 2022 KFBM data, only 27% of land farmed by Kentucky farmers is owned by the farmer. The remaining 73% is typically comprised of landowners that may or may not have a background in farming. In some cases, the landowner inherited the farm and may not even live in the same state as the farmland. There are several factors the landowners need to be aware of and consider when renting their farm.

One decision that needs to be made is what type of rent the landowner plans to receive. There are three main types of rent that were discussed in recent article "[Land Rental Agreements](#)." Below, you'll find a few highlights of each type of rental agreement. The first thing the landowner needs to consider is how much risk they are willing to take. If the landowner doesn't want any risk, they should choose a cash rental agreement. This will allow them to receive a steady income each year that will not be affected by the crop yield. This will solely be based on a rental price per acre, which can vary by location, ground quality, grain prices, and the local market.

There are many factors that go into determining the cash rental price. Location and ground quality are one of these major factors. What soil types are located on the farm? Is the farm prone to flooding? Is there field drainage tile on the farm? Are there any other possible causes for low productivity that might need to be addressed?

Grain prices are also another factor that play a big role in determining the cash rental price, but just looking at the grain prices does not tell the whole story. Typically, when grain prices increase, so do crop input prices and this increase will sometimes hurt the farmer's profitability more than the increase in the grain prices improves it. Because there is so much variability in grain prices, farmers will lock in prices to protect their profitability from a large price drop, so they are very rarely able to completely capitalize on any major price increases. Once a farmer agrees to increase the amount of the cash rent payment, it is hard to ever convince the landowner to lower the payment back down when there is a market downturn.

Some landowners are willing to take on risk with the potential of a higher return. These landowners should choose a share crop leasing agreement. This will allow the landowner to receive a higher payment in good crop years, but they are also accepting the risk of a lower payment in low yielding years. The landowner may choose to purchase crop insurance on their share to hedge against the risk of lower crop yields. They may also choose to sign up for government payments through the local Farm Service Agency office. Depending on the percentage of the share agreement, the landowner might also have to share in some of the crop expenses that they would not have to share in with a cash rental agreement.

Once the type of leasing agreement is decided, there are other issues to take into consideration. One issue that may come up is the possibility that some of the land is unsuitable for row crop farming and the renting farmer may not be willing to rent that portion of the land. In that case, the landowner may want to speak to the local FSA and NRCS offices to see if there are any programs available for this portion of the land, such as the

Conservation Reserve Program (CRP). If so, this may allow the landowner to generate some income off that portion of land they would otherwise not generate.

One factor that may be often overlooked by a landowner is providing access to the land for the farmer. In many instances a farm may be landlocked, so some type of access needs to be provided to the farmer. Also, many farms may have fences on the farm that either need to be maintained or need to be removed. In both cases, an agreement needs to be made on who will be responsible for maintaining the roads and either maintaining or removing any fences.

Field Drainage tile has been installed on many farms to assist in the regulation of excessive water on a farm at any given time. In many instances, this field drainage tile will help increase the productivity of the farm. Field drainage tile is considered a capital expense with a 15-year recovery period. This can quickly become an expensive, but valuable investment for both parties. In many cases the landowner and the farmer may share in this cost, but there are other cases where the farmer agrees to cover all the cost of the field drainage tile installation. In either case, the farmer may request a longer-term leasing agreement because of this 15-year investment. They may also request a pro-rated payment to cover some of the cost of the field tile if the rental agreement does not extend past a certain number of years.

Before the final rental agreement is made, the landowner has other factors to consider. What happens if the landowner decides to sell the farm or passes away? The lease agreement terms, as well as an exit strategy for both parties are also necessary.

These are only a few of the decisions that need to be made before a leasing agreement is made between landowner and tenant. Many land leasing agreements are made verbally and with a handshake, but for the protection of both parties there should be a written and signed agreement with all the specific details of the agreement listed. This will allow both parties to have something in writing in case any issues ever arise. This will also provide a written basis to go back to when/if any future agreements are made between the parties.

Additional Resource

Illinois Cash Farm Lease Form

Recommended Citation Format:

Forsythe, M. "[What to Consider When Renting Out Your Farm.](#)" *Economic and Policy Update* (23):10, Department of Agricultural Economics, University of Kentucky, October 30th, 2023.

Author(s) Contact Information:

[Michael Forsythe](#) | [KFBM](#) Area Extension Specialist | michael.forsythe@uky.edu

Economic & Policy Update

E-newsletter Volume 23, Issue 10

Editors: Will Snell & Nicole Atherton



Department of Agricultural Economics
University of Kentucky

**OCT
2023**

Prospects for Winter Backgrounding 2023-2024

Author(s): Greg Halich and Kenny Burdine

Published: October 30th, 2023

After several years of cattle selling at frustratingly low price levels, continued herd liquidation has led to tight supplies and much higher calf prices in 2023. While markets have pulled back in recent weeks, calves and heavy feeders are moving at prices \$50 to \$70 per cwt above what was seen a year ago. Feed prices have also decreased over the last several months and most feeds will cost less this winter than last. Hay will likely be an exception in parts of Kentucky as a result of drought conditions. Hay markets tend to be much more regionalized due to high transportation costs, so significant hay cost differences can occur across regions. All of these factors should be taken into consideration when one considers placement of calves into backgrounding programs this fall.

At the time of this writing (October 24, 2023), March 2024 CME® feeder cattle futures were trading around \$238 per cwt. As winter backgrounders consider purchasing calves this fall, these late winter futures prices provide market expectations for feeder cattle sale prices. With an early spring futures price of \$238, and an estimated -\$6 basis, an 800 lb feeder steer in Kentucky would be expected to bring around \$1856 (800# @ \$232 per cwt) in March. Of course, actual basis is heavily impacted by local market conditions, lot size, cattle quality, location, and numerous other factors. The -\$6 basis discussed previously assumes that cattle are of relatively good quality and are sold in potload sized groups.

The AMS Kentucky Weekly Livestock Auction Summary for the week ending on October 21st reported a state average price for 450-500 lb steers of \$248 per cwt and a state average price for 500-550 lb steers of \$245 per cwt. This market continues to evolve, and additional costs could be incurred putting together groups of calves for placement. For the purposes of the first table, we estimated the purchase price for a 500 lb steer at \$255 per cwt, or something close to \$1,275 per head. There is always a large range in calf prices, so individuals are encouraged to apply this process to the type of calves they typically buy.

We also need cost estimates on wintering those calves and selling them in the spring. While we provide an estimate for a specific winter program, costs will vary based on local conditions and the specific backgrounding program. Feed is the major cost and producers should consider all potential feeding options including commodity feeds, corn, and corn silage. For this scenario, we will consider a single program where calves are fed 1.5% of their body weight per day of a 3-way blend of corn gluten, soy hulls, and shelled corn and another 1.5% of their body weight per day of grass hay. While performance will vary, we will assume a rate of gain of 2.5 lbs per day, which would put on 300 lbs in approximately 120 days.

The 3-way blend is valued at \$285 per ton and grass hay at \$100 per ton. Health costs are assumed to be \$28 per head, transportation costs are estimated to be \$15 per head, and selling/marketing expenses are set at \$25 per head. An interest charge of 8.5% is included and death loss is assumed to be 2.5% for 500 lb steers and 2.0% for 600 lb steers (discussed later in article). These costs will vary by location and operation, so readers are encouraged to come up with their own estimates.

Several of these cost estimates are worth careful consideration. For example, we have assumed selling/marketing expenses of roughly \$25 per head, which assumes that producers are paying the reduced commission rates associated with large groups. However, many producers will be selling in smaller groups and likely paying higher commission rates on a per head basis. Vet and medicine costs are assumed \$30 per head. With these caveats in mind, the following table shows expected returns to the program described above.

Table 1: Winter Backgrounding Budget Estimate

Revenues				
	# units	unit	price / unit	total
Feeder	800	lbs	\$2.32	\$1856
Expenses				
Stocker Calf	500	lbs	\$2.55	\$1275
Hulls / Gluten	0.585	tons	\$285	\$167
Hay	0.585	tons	\$100	\$59
Mineral	1	head	\$12.00	\$12
Vet / Med	1	head	\$30.00	\$30
Selling / Marketing	1	head	\$25.00	\$25
Hauling	1	head	\$15.00	\$15
Other (water, etc.)	1	head	\$12.00	\$12
Interest	8.5%	rate		\$39
Death loss	2.5%			<u>\$34</u>
<i>Total Expenses</i>				<i>\$1671</i>
Return to Land, Capital, and Management				\$185

As can be seen in table 1, projected returns are \$185 per head this winter based on the assumptions discussed previously. Producers are strongly encouraged to modify these assumptions for their individual programs to better reflect calf values and expected spring basis, as well as cost estimates and feed prices for their area. It is also worth noting that labor, depreciation, and interest on owned capital are not included in the budget, so the return shown is a return to land, capital, and management. Producers should ask themselves if that return adequately compensates them for their time, capital investment, management, and risk.

The two key assumptions made in Table 1 include the cost of the calves being placed and the expected sale value in the spring. Changes in calf placement costs will greatly impact winter backgrounding returns. For every \$5 per cwt decrease in the purchase price of the calves, the return to land, capital, and management increases by \$25 per head. The second assumption, the sale price for the feeder steer won't be known with certainty until spring. Note that the assumed spring sale price in the analysis is \$232 per cwt and the projected return is \$185 per head. A \$23 per cwt decrease in sale price would result in actual returns falling to \$0. While feed price does not have as large an impact on profit as sale price, a \$25/ton decrease in the price of the 3-way blend would increase expected profit by \$15, and vice versa.

Table 2 shows a side-by-side comparison of our assumed costs for placement of a 500 lb steer and a 600 lb steer. The same feeding and gain assumptions are made, but feed costs are higher for the 600 lb steer due to his increased bodyweight. A few other costs also increase, such as mineral, transportation and interest.

Table 2: Expected Variable Costs Fall 2023

	500 lb Steer	600 lb Steer
Feed	\$167	\$200
Hay	\$59	\$70
Vet/Medical	\$30	\$30
Mineral	\$12	\$14
Commission/Sale	\$25	\$25
Trucking	\$15	\$18
Interest	\$41	\$45
Death Loss	\$36	\$31
Other (water, etc)	\$15	\$15
Total Variable Costs	\$398	\$449

Note: Interest and death loss vary slightly by purchase price.

The cost estimates from table 2 are used to estimate target purchase prices for both 500 and 600 lb steers, given a target gross return, in table 3. A range of gross returns from \$50 to \$250 per head were used to create table 3, which are used to estimate a range of purchase prices. For 500 lb steers, target purchase prices ranged from \$2.43 to \$2.81 per lb. For 600 lb steers, target purchase prices ranged from \$2.26 to \$2.58 per lb. In both cases, the current calf market likely presents profit opportunities.

Here is an example of how this works for a 500 lb steer, targeting a \$150 gross profit per head:

800 lb steer x \$2.32 (expected sale price)	\$1,856
Total Variable Costs	- \$398
Target Profit	<u>- \$150</u>
Target Purchase Cost	\$1308
<i>Target Purchase Price = \$1308 / 500 lbs = \$2.616 per lb</i>	

Table 3 can also be used to adjust target purchase prices to your cost structure. If your costs are \$50 per head higher than the assumptions made in this analysis, then you would shift each targeted profit down by one row. For example, you would use the \$150 gross profit to estimate a \$100 gross profit if your costs were \$50 higher. An alternative approach would be to spread the additional costs over the purchase weight. In that way, each \$1 increase in costs reduces target purchase price by \$0.20 per cwt for a 500 lb steer and \$0.17 per cwt for a 600 lb steer.

Table 3: Target Purchase Prices for Various Gross Profits Fall 2023

Gross Profit	500 lb Steer	600 lb Steer
\$50	\$2.81	\$2.58
\$100	\$2.71	\$2.50
\$150	\$2.62	\$2.42
\$200	\$2.52	\$2.34
\$250	\$2.43	\$2.26

Notes: Based on costs in Table 2 and sales price of \$2.32/lb and \$2.28/lb for 800 lb and 900 lb sale weight respectively for 500 lb and 600 lb purchased steers.

Given the assumptions of this analysis, returns to winter backgrounding have the potential to be attractive given the late-October calf market and late winter CME® Feeder Cattle Futures. However, given the importance of expected sale price on returns, winter backgrounders are encouraged to explore opportunities to manage downside price risk through contracting, futures and options, LRP insurance, and other strategies. Figure 1 below depicts March CME® Feeder Cattle Futures from DTN over the last seven months, which has shown significant volatility. Note that the March CME® Feeder Cattle Futures contract was trading in the low \$225's in early-April, but was up in the mid \$270's in mid-September. Most importantly, it has dropped almost \$20 cwt in the last week to \$237.625, as of 10/24/2023. While it does appear that the market is currently offering good opportunity for winter backgrounding, there are many factors that will impact cattle markets between now and late winter. So time spent thinking about risk management strategies is likely time well spent. Winter backgrounders should carefully calculate their breakeven purchase prices for calves and be opportunistic as they approach this fall.

Figure 1: March 2024 CME® Feeder Cattle Futures from DTN (close 10/24/23)



Recommended Citation Format:

Halich, G. and K. Burdine. "[Prospects for Winter Backgrounding 2023-2024.](#)" *Economic and Policy Update* (23):10, Department of Agricultural Economics, University of Kentucky, October 30th, 2023.

Author(s) Contact Information:

[Greg Halich](#) | Associate Extension Professor | greg.halich@uky.edu

[Kenny Burdine](#) | Extension Professor | kburdine@uky.edu

Economic & Policy Update

E-newsletter Volume 23, Issue 10

Editors: Will Snell & Nicole Atherton



Department of Agricultural Economics
University of Kentucky

OCT
2023

2023 Kentucky Vegetable & Fruit Input Costs: Changes and Trends

Author(s): Tim Woods, Emily Spencer, and Matt Ernst

Published: October 30th, 2023

Summary

Prices for many crop inputs have increased steadily since 2016. This report updates 2023 Kentucky price trends for key vegetable and fruit crop inputs: fuel and fertilizer, labor, plant protection products, and seed. These representative data may be used to help producers identify input costs and trends and update production budget estimates for 2024.

Nationally, there has been a sharp increase in many farm inputs connected with the vegetable sector, especially over the past 3 years. Table 1 below details average price increases for several key inputs, including the vegetable sector overall.

Table 1: Index of Selected Prices Paid by U.S. Farmers Related to Vegetable Production

Input	2016	2017	2018	2019	2020	2021	2022	2023
Fertilizer, nitrogen	71.6	66.5	66.5	71.4	69.9	90.9	151.6	--
Fertilizer, potash/phosphate	70.5	64.4	62.9	63	68.1	85.1	110.1	--
Fuels, diesel	51.8	57.6	67.4	71.5	52.5	73.3	112.9	-
Fuels, gasoline	59	64.5	70.9	75.1	59.6	78.5	104.4	-
Wage rates	115.9	119.1	126.3	133.2	138.2	146.1	156.9	++
Vegetable sector	106.1	107.2	109.8	113.1	113.1	121.3	138.8	+

Index, 2011 = 100

Source (2016-2019): USDA, National Agricultural Statistics Service except first quarter 2022 projections by USDA, Economic Research Service

Source (2020-2022): Vegetables and Pulses Outlook: April 2023, VGS-370, April 27, 2023, USDA, Economic Research Service

Source (2023): decreases from 2022 levels based on sources in the footnotes below [\[1\]](#)[\[2\]](#)[\[3\]](#)[\[4\]](#)

Source Vegetable sector [\[5\]](#)

Key variable input costs such as those related to fertilizers and fuel were down in 2023 compared to the previous year, but still remained relatively high. Wage rates have moved up sharply since 2016 and appear to be up again based on AEWWR figures, especially in California.

Kentucky farmers have similarly seen significant increases in some inputs, while others have stayed relatively steady or even dropped since last year. In the summer and fall of 2023, we completed a regional summary of input prices for Kentucky producers for both conventional and organic inputs on vegetable farms.

For John Bell at Elmwood Stock Farm, a certified organic farm in Georgetown, KY, three inputs have been significantly over budget in the fall of 2023: cardboard and plastics, seed, and interest expense. Bell further noted that, “drip irrigation supplies are around 20% more than what we had expected.” This article details some of the farm inputs that are affecting Kentucky growers in 2023 and will likely continue to affect Kentucky growers into 2024.

Plant protection products

Plant protection expenses vary across different crops and by season. An input price survey was conducted with regional suppliers, agricultural organizations, and leading farmers in summer 2023, confirming higher prices for many inputs for Kentucky specialty crop growers. However, prices reported by major suppliers for Kentucky growers in the 2022 and 2023 seasons showed relative stability across synthetic products. Price ranges for selected major products are reported here.

Inputs for certified organic production may be more difficult to obtain locally, depending on the crop and the region. Generally speaking, product prices for OMRI-approved materials showed less variability in 2022 and 2023 than in previous years. Availability and shipping costs are often more significant factors for obtaining plant protection products for certified organic production.

For a list of plant protection products and their respective costs, see the [CCD website](#).

Labor

Kentucky H2A wages were \$11.63/hour in 2019, climbing 23% to \$14.26 in 2023. Labor comprises 30-40% for typical produce enterprises, so this is a significant figure. Labor is also a significant portion of post-harvest costs related to packing, grading, and shipping. These costs have increased throughout the supply chain.

Seed

Seed costs, as reported by USDA for vegetable farms on a national basis, increased slightly from 2020 to 2022. The USDA survey reported no year-on-year increase in seed costs for the first quarter of 2023, as compared to 2022.

Kentucky vegetable producers reported only modest, if any, increases in seed prices for 2023. The vegetable seed cost category is similar to the plant protection category: some increases to be expected over time, but large percentage increases continue to be unusual.

Plant material for perennial crops (asparagus, berries, tree fruit, nuts) has increased more significantly since 2020. This is tied to robust demand and producers passing along higher costs (e.g., labor and fertilizer) to buyers. In some cases, higher freight costs have an outsized impact on the cost of acquiring plant stock for perennial crops.

2024 Outlook

Nationally, prices for many crop inputs have increased since 2020 and we see the same for Kentucky growers. International market trends, trade and geopolitics have an outsized impact on the prices that Kentucky farmers

Economic & Policy Update

E-newsletter Volume 23, Issue 10

Editors: Will Snell & Nicole Atherton



Department of Agricultural Economics
University of Kentucky

OCT
2023

Mississippi River Level Impacts on Basis: 2022 Vs. 2023

Author(s): Grant Gardner

Published: October 30th, 2023

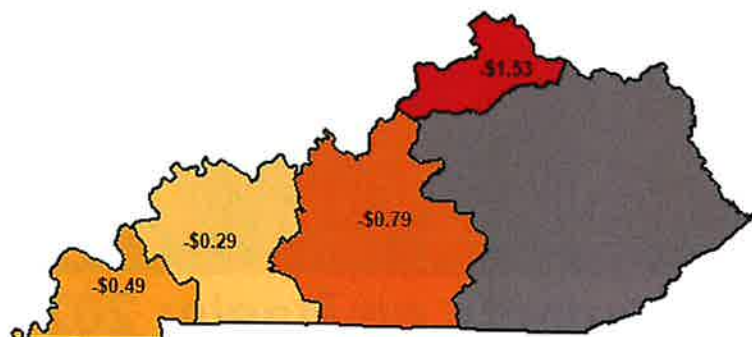
In 2022 and 2023, the river levels on the Mississippi slowed barge freight and, thus, crop exports out of Kentucky. When river levels decline, barge transportation slows, which causes barge freight rates to increase. Local commodity basis, defined as the difference between the futures price and the local cash price, is a function of transportation cost. Thus, higher barge freight rates cause the basis to widen. When the basis widens, producers selling at the cash price, utilizing hedge-to-arrive (HTA) contracts, or hedging through futures typically receive lower crop prices than expected. When river levels are normal in Kentucky, the average October basis is near $-\$0.20$ for corn or $-\$0.30$ for soybeans. This year, producers that had to deliver when the basis was at its worst could have lost $\$0.30$ - $\$0.60$ /bushel on corn and $\$0.50$ - $\$0.70$ /bushel on soybeans.

As river levels have hit record lows in 2023, it is unsurprising that corn basis dropped lower than last year in the western regions. Interestingly, the corn basis is better in the central and northern regions than last year, which could be driven by 2022 barge freight from Cincinnati being two and a half times 2023 prices (USDA-AMS Grain Transportation Reports, 2023). The USDA only reports soybean basis for three Kentucky regions; however, soybean basis is better in 2023 than in 2022. Elevators likely have a higher demand for soybeans when river levels are low because they are higher priced and allow smaller quantities of grain with higher dollar volume to be shipped downriver. Overall, the impact of river levels on Kentucky basis has been less detrimental than last year; however, many producers are still taking a large hit to their bottom line.

Looking at risk management strategies, producers should utilize on-farm storage to store corn and soybeans until river levels are normal. Off-farm storage could also be a viable option; however, less storage supply and higher storage demand have caused off-farm storage costs to increase. Higher storage cost needs to be accounted for before making a decision. Last year, the basis improved drastically by mid-November, surpassing the 2018-2021 average by December/January. We will likely see similar but less drastic patterns occur this year. Although barge transportation has been less costly, river levels are lower than last year and could moderate basis recovery.

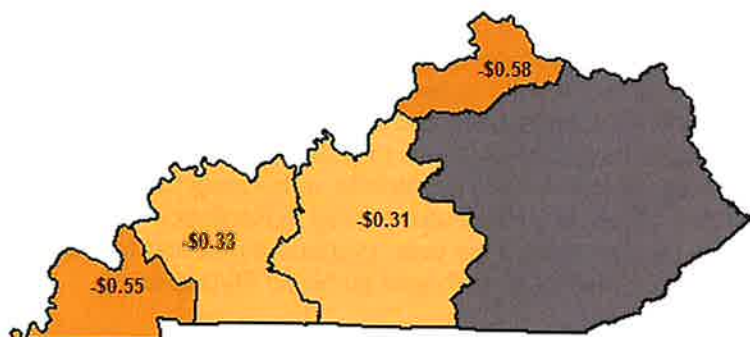
Typical methods for producers to manage price risk include hedging through futures or HTA Contracts that minimize price risk but leave the producer susceptible to basis risk. Minimizing price risk is typically the preferred strategy because the basis is more predictable than price under normal circumstances. However, river-level issues have caused unpredictable basis patterns. If we continue to experience dry summers, Kentucky producers without on-farm storage may need to rely on forward or basis contracts that lock basis before river levels decline. A downfall to these strategies is that they limit where crops can be delivered and leave the producer susceptible to production risk, which may result in producers taking a lower spot price or elevator fees.

Figure 1: Weakest Weekly Average **Corn** Basis in 2022 Relative to 4-Year-Average (2018-2021)



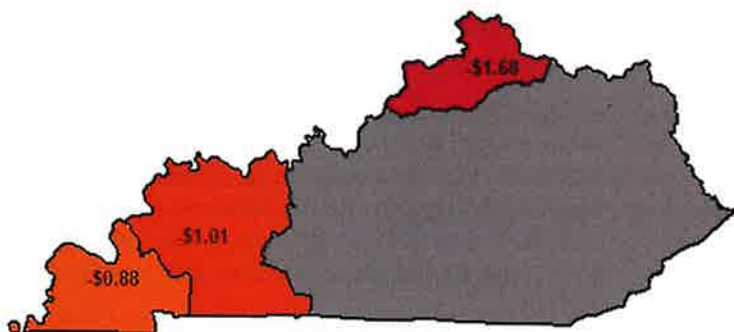
Source: DTN (2023)

Figure 2: Weakest Weekly Average **Corn** Basis in 2023 Relative to 4-Year-Average (2018-2021)



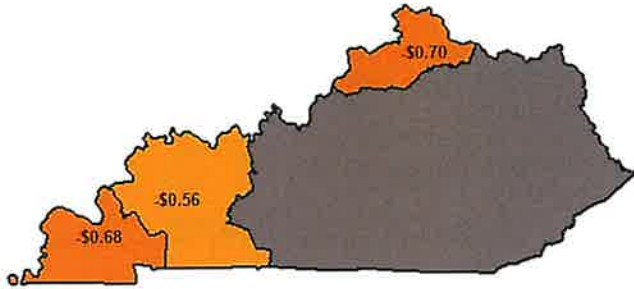
Source: DTN (2023)

Figure 3: Weakest Weekly Average **Soybean** Basis in 2022 Relative to 4-Year-Average (2018-2021)



Source: DTN (2023)

Figure 4: Weakest Weekly Average Soybean Basis in 2023 Relative to 4-Year-Average (2018-2021)



Source: DTN (2023)

Table 1: 2022 and 2023 Weakest Weekly Average Corn Basis Relative to 4-Year-Average by USDA Region and Corresponding Kentucky Counties

Region	Kentucky Counties in Region	Weakest Weekly Average Corn Basis in 2022 Relative to 4-Year-Average (2018-2021)	Weakest Weekly Average Corn Basis in 2023 Relative to 4-Year-Average (2018-2021)
Purchase	Fulton, Hickman, Carlisle, Ballard, Graves, McCracken, Calloway, Marshall, Livingston, Lyon, Trigg	-\$0.49	-\$0.55
Midwestern	Caldwell, Crittenden, Christian, Hopkins, Webster, Union, Henderson, Daviess, McLean, Muhlenberg, Todd, Logan, Simpson, Ohio, Hancock	-\$0.29	-\$0.33
Central	Meade, Breckinridge, Grayson, Butler, Warren, Allen, Monroe, Barren, Edmonson, Hardin, Hart, Metcalfe, Cumberland, Clinton, Russell, Adair, Green, Taylor, Casey, Marion, Larue, Nelson, Bullitt, Jefferson	-\$0.79	-\$0.31
Northern	Oldham, Trimble, Henry, Carroll, Owen, Gallatin, Grant, Boone, Keaton, Campbell, Pendleton, Bracken	-\$1.53	-\$0.58

Table 2: 2022 and 2023 Weakest Weekly Average Soybean Basis Relative to 4-Year-Average by USDA Region and Corresponding Kentucky Counties

Region	Kentucky Counties in Region	Weakest Weekly Average Corn Basis in 2022 Relative to 4-Year-Average (2018-2021)	Weakest Weekly Average Corn Basis in 2023 Relative to 4-Year-Average (2018-2021)
Purchase	Fulton, Hickman, Carlisle, Ballard, Graves, McCracken, Calloway, Marshall, Livingston, Lyon, Trigg	-\$0.88	-\$0.68
Midwestern	Caldwell, Crittenden, Christian, Hopkins, Webster, Union, Henderson, Daviess, McLean, Muhlenberg, Todd, Logan, Simpson, Ohio, Hancock	-\$1.01	-\$0.56
Northern	Oldham, Trimble, Henry, Carroll, Owen, Gallatin, Grant, Boone, Keaton, Campbell, Pendleton, Bracken	-\$0.68	-\$0.70

Recommended Citation Format:

Gardner, G. "[Mississippi River Level Impacts on Basis: 2022 Vs. 2023.](#)" *Economic and Policy Update* (23):10, Department of Agricultural Economics, University of Kentucky, October 30th, 2023.

Author(s) Contact Information:

[Grant Gardner](#) | Assistant Extension Professor | grant.gardner@uky.edu

pay for fuel. Producers with the storage and/or financial capacity to pre-purchase fuels may be able to guard against some of the risks of price increases. Price uncertainty will likely remain in 2024.

Prices for nitrogen fertilizers were still very high in 2023. Going into fall 2023, "fundamental factors suggest an easing in nitrogen fertilizer prices," according to the University of Illinois (Schnitkey)[6]. However, as the Illinois report acknowledges, this is an easing from very high nitrogen prices. Price relief for synthetic nitrogen sources in 2024 is unlikely to reach back to price levels seen in 2021, let alone 2020.

Global factors in the phosphate industry supply chain portend that 2024 phosphate fertilizer prices could remain at 2023 levels (Jasinski)[7]. Potash prices are also likely to remain similar to 2023 prices because of similar supply and demand.

In short: Input prices rose sharply across the board for specialty crop producers through the pandemic both in Kentucky and nationally. Some costs have moderated in 2023, even come down sharply relative to peak costs in 2022. Labor costs remain a challenge and the era of higher fuel, fertilizer, chemical, and seed prices is likely to persist for Kentucky fruit and vegetable growers in 2024, though there is evidence to suggest that the prices will stabilize at their current high price point, rather than see more sharp increases.

[1] <https://www.dtnpf.com/agriculture/web/ag/crops/article/2023/08/09/fertilizers-see-large-price-move>

[2] <https://www.dtnpf.com/agriculture/web/ag/crops/article/2023/08/09/fertilizers-see-large-price-move>

[3] <https://www.eia.gov/petroleum/gasdiesel/>

[4] <https://www.fb.org/market-intel/examining-the-2023-aewr>

[5] Input items common to vegetable production weighted by 2006 vegetable farm expenses derived from the 2006 Agricultural Resource Management Survey.

[6] Schnitkey, G., N. Paulson, C. Zulauf, and J. Baltz. "Nitrogen Fertilizer

Prices Stabilize at High Levels in Spring 2023." *farmdoc daily* (13): 108, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, June 13, 2023.

[7] Jasinski, Stephen. "Phosphate Rock" and "Potash." In *Mineral Commodity Summaries 2023*, U.S. Department of the Interior U.S. Geological Survey. <https://pubs.usgs.gov/periodicals/mcs2023/mcs2023.pdf>

Recommended Citation Format:

Woods, T., E. Spencer, and M. Ernst. "[2023 Kentucky Vegetable & Fruit Input Costs: Changes and Trends](#)." *Economic and Policy Update* (23):10, Department of Agricultural Economics, University of Kentucky, October 30, 2023.

Author(s) Contact Information:

[Tim Woods](#) | Extension Professor | tim.woods@uky.edu

[Emily Spencer](#) | Extension Associate | emilyspencer@uky.edu

Matt Ernst | Writer | Center for Crop Diversification

Breakfast Hash

Servings: 6 Serving Size: 1 cup Recipe Cost: \$6.46 Cost per Serving: \$1.08



Ingredients:

- 2 tablespoons olive oil
- 1/2 pound breakfast sausage
- 1 small onion, chopped
- 1 bell pepper, chopped
- 1 large sweet potato, chopped
- 1/4 teaspoon paprika
- 1/4 teaspoon black pepper
- 6 eggs

Directions:

1. Add a tablespoon of olive oil to one skillet and set aside.
2. In another skillet, add sausage and break into small pieces. Cook over medium heat. Once browned, add onion and bell pepper. Cook for another 2-3 minutes. Remove skillet from heat.
3. In the skillet with olive oil, add chopped sweet potato, paprika and black pepper. Cook and stir until the potatoes begin to brown slightly. Cover and let potatoes continue to cook, stirring occasionally, for another 5 minutes.
4. Scrape potatoes to one side of skillet and add half of the sausage mixture into the potatoes. Do the same with the potatoes and move half of the potatoes to the sausage skillet. Mix each skillet until ingredients are combined and then create 3 spaces in each skillet for the eggs.
5. Crack eggs into spaces, cover the skillets and cook over medium-low heat until eggs are cooked firm.

Source: Katie Shultz, Extension Specialist, University of Kentucky Cooperative Extension Service

260 calories; 19g total fat; 5g saturated fat; 0g trans fat; 200mg cholesterol; 430mg sodium; 8g carbohydrate; 1g fiber; 3g sugar; 0g added sugar; 14g protein; 6% Daily Value of vitamin D; 4% Daily Value of calcium; 10% Daily Value of iron; 4% Daily Value of potassium.