

Eric Baker
Estill County Extension Agent for Agriculture & Natural Resources

Insects in Livestock Feed and Hay

for other insects, as well as making grain unpalatable. In addition, laboratory research has shown that weevils can contribute to the increase of the *Aspergillus flavus* fungus and aflatoxin production in infested corn. Metabolic activity of the weevils increases the moisture content of grain. This favors the fungus, and the weevils can carry its spores as they move through the grain mass.

Mealworms are the wireworm-like larvae of insects known as darkling beetles. These insects can be found in processed feed and cracked grains. The larvae and adults feed on cracked grain kernels, fines, and processed feeds. In addition, darkling beetles have been implicated as intermediate hosts of some poultry parasites. The insects live in around feed rooms, feed bunks, and also may be found in stored hay. Both the adults and larvae avoid light and prefer to hide in or under things, so



Mealworms are the active wireworm-like larvae of darkling beetles. (Photo: Lee Townsend, UK)

wider than the head. Bran bugs, like mealworm beetles, feed on cracked kernels and fines. These beetles are 1/10-inch long flat beetles. Large numbers of dead beetles, their cast larval exoskeletons, and fecal pellets produce "flour" similar to that from weevils. Their metabolic water contributes to grain heating and spoilage. In addition, the beetles produce quinones, that can give feed a pungent odor. Similar in appearance, small red-brown fungus beetles can thrive in moldy grain and feed. Sweet feeds are particularly prone to infestations of these insects and the tiny grain mite.

Grain mites thrive under warm, humid conditions. Infested grain or bags of spoiled feed often have a disagreeable musty odor and are covered with a fine "dust" of living and dead mites. People handling this material may develop dermatitis resulting from mite "bites". In times past, this condition was called "grocers itch", a malady suffered by those who regularly handled infested bags of meal or flour.

Scavenger insects can infest silage and spoiled hay. Soldier fly maggots were reported last week from silage in a ground bunker. These fly larvae are common scavengers in wet compost piles and other decaying organic matter. They are an indication of very wet conditions and their activity would liquify the material even further.

Insects are not uncommon in feed. Consumption of a few should not pose a threat to livestock. If only a relatively small number of beetles is present and the feed or grain is in good condition, it may be practical to feed it. Then, thoroughly clean and treat the storage area and surroundings with an appropriately labeled insecticide before refilling.

However, the responses of animals to different insects can vary. Ingestion of significant numbers could cause gastric distress for some animals. Long-term infestations of large numbers of insects can result in significant loss of feed quality, condition, or palatability. The feed odor or taste may make it unacceptable. Sanitation is the important first step to take when dealing with infestations. Use a broom and shop-vacuum can be used to clean cracks and crevices. The goal is to remove accumulations of fines and hidden insects. Infestations can develop from small numbers of insects or mites that are not removed or killed.

Appropriately labeled pyrethrins or pyrethroid insecticides can be used to after clean up and before new grain or feed is added. Do not treat feed or grain directly with these products.

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The 1/8-inch long rice weevil is easily recognized by its long snout and 4 orange spots on its back. They can be seen crawling through infested grain. (Photo: Lee Townsend, UK)

Rice and granary weevils develop in grain kernels, causing significant problems in farm-stored corn. The grub-like larvae of these insects develop inside kernels. Their feeding and tunneling can result in about a 7% weight loss over a 90-day period along with production of vast amounts of "flour" within the grain mass. The "flour", composed of insect eggs, waste, fines, and shed exoskeletons, may make serve as food

infestations may not be noticed until relatively large numbers of insects are present. Horse owners who find dark beetles around stables and haylofts are legitimately concerned that the insects may be toxic blister beetles. Fortunately, it is easy to distinguish between the two. Blister beetles have a distinct narrow neck segment immediately behind the head and darkling beetles' neck is much

Wishing Well®

5	2	6	4	2	3	5	3	6	2	4	7	3
N	M	D	G	U	A	E	R	O	S	L	A	T
5	7	3	7	5	4	5	6	4	3	8	7	8
W	S	I	W	T	O	H	N	R	S	N	I	I
3	4	5	3	5	4	8	3	8	4	3	6	5
T	I	O	I	U	O	G	C	H	U	V	O	G
2	5	6	2	4	8	3	5	4	8	6	3	4
I	H	T	C	S	T	E	T	D	T	G	N	A
8	3	8	6	5	8	7	6	7	3	2	6	7
I	T	M	I	S	E	T	V	C	U	I	E	H
2	8	3	8	6	3	7	6	4	2	7	2	8
N	F	R	U	U	E	T	P	Y	Y	O	O	N
7	2	7	2	7	2	7	2	7	2	7	2	7
S	U	R	C	L	C	I	E	F	S	E	S	

HERE IS A PLEASANT LITTLE GAME that will give you a message every day. It's a numerical puzzle designed to spell out your fortune. Count the letters in your first name. If the number of letters is 6 or more, subtract 4. If the number is less than 6, add 3. The result is your key number. Start at the upper left-hand corner and check one of your key numbers, left to right. Then read the message the letters under the checked figures give you.

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CryptoQuip

This is a simple substitution cipher in which each letter used stands for another. If you think that X equals O, it will equal O throughout the puzzle. Solution is accomplished by trial and error.

Clue: K equals S

KVUURKX L UXZKRF MK

RUXZLSMFV WZXW IRVWLFMK'

HXPMQIX ... QRVIN GRV KLG

PX'K MF SPX NMHXZ'K KXLS?

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CryptoQuote

AXYDLBAAXR is LONGFELLOW

One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each week the code letters are different.

NRNLPVQN'O FGGVDNI FQ

VWWFOHVQFG CFHGMLN -

NAWNZS SXN OBPIHRNL,

VC WVMLON.

- MQBQVDQ OZNFBNL

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Puzzle Answers

January 2, 2019

Puzzles4Kids

Answer

What does a cow say on the last day of December?

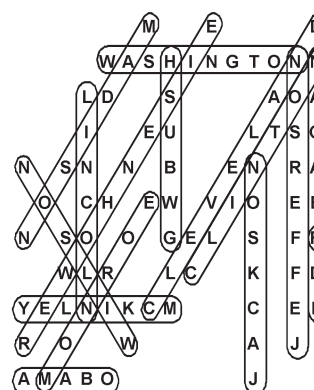
Happy Moo Year.

Letter Box

Solution

N	R	E	Z	I	T	P	O	A
P	A	T	R	O	N	I	Z	E
Z	O	I	A	P	E	N	R	T
E	P	A	I	T	R	Z	N	O
R	T	O	N	E	Z	A	P	I
I	Z	N	P	A	O	T	E	R
A	N	Z	E	R	I	O	T	P
T	I	R	O	N	P	E	A	Z
O	E	P	T	Z	A	R	I	N

RE-ELECTED TO A SECOND TERM



CryptoQuip

Suppose a person is operating Greg Louganis' vehicle ... Could you say he's in the diver's seat?

CryptoQuote

Everyone's allowed an occasional failure — except the skydiver, of course. — Unknown Speaker

FEAR & KNIGHT

answer



Even Exchange

answers

1. Amble, Ample
2. Roast, Coast
3. Lovely, Lively
4. Banner, Banter
5. Wanda, Wands
6. Dipper, Diaper
7. House, Horse
8. Crane, Craze
9. Gravel, Travel
10. Blunt, Blurt

Weekly SUDOKU

Answer

3	2	1	8	9	6	4	5	7
9	4	7	5	1	2	8	3	6
5	6	8	4	3	7	1	9	2
2	5	9	1	6	4	7	8	3
4	8	6	7	5	3	9	2	1
1	7	3	2	8	9	5	6	4
6	9	4	3	7	5	2	1	8
8	3	2	9	4	1	6	7	5
7	1	5	6	2	8	3	4	9

King Crossword

Answers

Solution time: 25 mins.

O	K	R	A	V	I	S	A	O	W	L	
D	T	E	S	A	V	E	R	N	E	E	
O	N	T	H	E	M	E	N	D	T	V	A
R	E	D	C	A	P	O	T	H	E	R	
A	T	T	H	R	E	E					
A	N	O	N	A	R	E	A	D	A	M	
M	E	N	G	Y	M	O	V	A			
P	O	T	S	A	S	P	S	T	E	P	
H	E	A	R	T	A	M					
K	N	E	A	D	S	P	A	R	S	E	
N	E	W	O	N	T	H	E	R	O	A	D
I	R	A	B	E	A	U	T	O	G	A	
T	O	Y	E	B	O	N	S	T	E	M	

The Garden Bug

Flowers can relieve stress



Our modern lives are busy, and some people feel stressed every day. A study from the University of North Florida shows that living with flowers lessens societal pressure and feelings of anxiety. Participants in the study who received flowers overwhelmingly reported an improved mood, and that they felt happier. Flowers can strengthen feelings of compassion, foster creativity and even provide a boost of energy.

Source: Society of American Florists

Birding BITS

BY Cindy Brook

Rockin' Robins

The largest member of the thrush family, American robins are easy to identify with their orange breast and cheerful song. They spend much of the winter digging for worms and eating fruit. Attract them to your yard with orange halves on platform feeders and fresh water in birdbaths.

E-mail: birdingbits@cfl.rr.com
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Stickeler's Puzzle

Match the words on the left with their meanings on the right.

1. arctophile	a. a lover of teddy bears
2. turophile	b. a lover of flowers
3. ostreophile	c. a lover of wood
4. xylophil	d. a lover of cheese
5. anthophile	e. a lover of oysters

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Bible Trivia Answers

Now available by Wilson Casey! 2017 Bible Trivia box calendar loaded with daily teasers.

ANSWER: (1) Neither; (2) Isaac; (3) Cyrus; (4) Simeon; (5) An angel; (6) Z

Stickeler's Answer on Page 5