

# The DAIRY

## PROTEIN REQUIRED TO PRODUCE MILK

Cows will not drink rank or stale water, and the milk pail will show the results. Care should also be exercised to see that the water supply does not become contaminated by sewage, wastes, and the like, since infectious diseases, such as typhoid fever, may be passed on to the milk consumer by cows drinking such contaminated water.

The butterfat of milk is considered the most valuable component. It is upon the content of this material that cream and, to a large extent, milk are bought and sold. The percentage of fat in milk varies with the breed of cows and with the individuals of the various breeds. The Babcock test enables us to find this percentage. A cow must obtain an excess of carbohydrates and fat above that required for maintenance in order to make milk. It is questionable whether the percentage of fat in milk can be changed by the animal's feed, but at least the lack of sufficient amount of feed is a limiting factor in the milk and fat production.

The casein and albumen of milk together form its protein content. They are the essentials in making cheese. Proteins are specific in the work they will do. For example, feathers are 87 per cent protein but they wouldn't make milk. It is this fact that teaches us that a cow requires proteins of certain kinds for milk production. These proteins are found in linseed meal, gluten feed, cottonseed meal and alfalfa. The proteins of other feeds can be utilized for maintenance and milk production in the presence of proteins from the above feeds.

Milk sugar is manufactured by the cow from the carbohydrates and the fat obtained in the feed. This component will rarely be a limiting factor in milk production.

The ash content of milk indicates that a large quantity of minerals must be at hand to supply the demand. In case of insufficiency of minerals in the ration, the cow will draw upon her skeleton and show the result in a run-down condition and in falling off in milk. Salt, calcium or lime, and phosphorus are the minerals usually lacking. It is common practice to feed salt while calcium and phosphorus can be supplied by certain feeds such as cottonseed meal, wheat bran, alfalfa, or any legume.

## Air Is Most Important Factor for Farm Stock

Air is one of the most important factors influencing the health of farm animals and it is therefore essential that adequate means of ventilation should be provided for buildings in which animals are kept during the winter.

There are two things which a ventilation system must do, according to Dr. C. D. Rice of the veterinary pathology department, Iowa State college. These are to supply an abundance of fresh air and remove foul air without interfering with the health of the animals through the creation of drafts or excessive cold.

The average cow actually breathes about 1,180 gallons of air per hour, but in order to keep the air fairly fresh, new air must be supplied at the rate of about 500 gallons per minute. The hog breathes 845 gallons of air per hour and should have a supply of 172 gallons per minute, while the hen breathes about 9 gallons per hour and should have 4 1/2 gallons supplied per minute.

The economical advantages of a proper ventilating system are evident from the results of one experiment in which milk production in a herd of 80 cows was increased by 100 gallons per cow per year on similar rations, merely through the installation of a ventilation system. Farmers seeking information on the construction or installation of systems can get help from county agents, veterinarians, agricultural engineers or their state experiment stations.

### Dairy Hints

Cows do not enjoy moldy silage, and it makes horses sick.

Use a good, pure-bred sire. "Breed, don't just propagate."

One minute after garlic is eaten by a cow, the disagreeable flavor and odor of this pungent plant may be detected in the milk.

Just as an outline, good cows must be fed suitable dairy rations—balanced rations made of a goodly mixture that will encourage the cow to eat heartily.

A herd should number at least 15 cows before a milking machine is a time-saving investment, says one authority.

The only practical way to prevent the appearance of garlic flavor and odor in milk in regions where the weed infests pastures is to keep the cows from eating the plant.

Milk scales are "feedometers" which every dairyman should have to tell how far his cows go in production on the feed consumed.

# Horticultural News

## WATCH OUT CLOSELY FOR CANKER WORMS

Canker worms may not be serious for a number of years and this fact causes many growers to be somewhat careless about the treatment of this pest. Canker worms may become serious at any time, and it is always advisable to pay close attention to the reports of entomologists, to examine the trees for evidence of their presence, and to be prepared to give them prompt and vigorous treatment. The following recommendations have been issued by the entomologists of the Pennsylvania department of agriculture:

"Canker worms can be eradicated by a careful and thorough spraying with lead arsenate, at the rate of one and one-half pounds of powdered lead arsenate to 50 gallons of water in the spring or early summer when the worms are first seen. Two pounds of the poison should be added to the same quantity of water if the spraying operation is delayed until the worms are half-grown.

"When it is impractical to spray the trees, the canker worms may be controlled by sticky bands, tree tangle-foot, or similar material, which may be applied directly to the bark or on bands of heavy paper or cotton batting closely drawn around the tree. These bands should be placed during the spring for the first appearance of the worms, and during October for the fall species—the latter should be kept in a sticky condition until the following May to prevent both the wingless adult females and the newly hatched caterpillars from ascending the tree.

"Canker worms are known to most fruit growers and farmers, and may be distinguished from many other caterpillars by their looping habit, which gave them the name of 'loopers' or 'measuring worms.' They are about three-fourths of an inch long, and pale green or dark brown in color, varying with age and condition. These worms devour all sorts of leaves, but are especially active on apple and pear trees."

## Plan for Top-Working Trees by June Budding

If one has only a few fruit trees and would like to try his hand at top-working, June budding offers an opportunity.

The buds must be cut from the current season's growth and usually inserted in wood of the previous season's growth unless the work is done with the peach which is of quick growth.

Smooth sprouts the size of the little finger or smaller and which are near the trunk of the tree are selected for the insertion of the buds.

The buds are inserted near where these smaller sprouts emerge from the larger branches and at pruning time the part of these stocks above the bud is cut off if the bud has been successful.

Where one has plenty of time, as many as twenty or even more buds may be inserted in one tree, distributed so as to give the new growth the proper shape.

If enough of the buds live all the original growth may be cut away the following fall or winter, although it is often desirable to leave a part of the old growth for another crop till the new growth has had another year.

Trees top-worked in this way will bear fruit the second year after. Apple trees are usually grafted, but may be budded as well. With the peach the graft is rarely successful, while it is easy to get the buds to live.

No wax is necessary in budding; a T-shaped incision is made in the stock and the bud pushed into this opening and tied to its place.

In cutting the bud from the new growth of the desired variety a small bit of wood is taken off with it, that is, you cut a little deeper than the bark in order to be sure of getting the inner bark or cambium layer. After the buds have started remove the wrapping.

### Horticulture Notes

Get that spray machine going on peaches and apples.

Get a spray schedule and have some good peaches and apples this summer.

When using the spray outfit, large or small, see to it that the valves work properly.

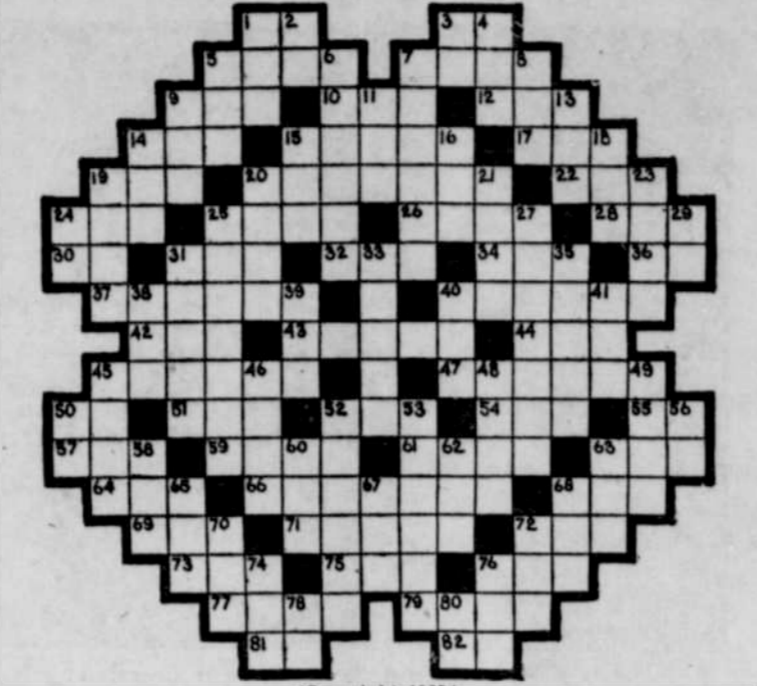
Careful pruning right after planting and every year that follows means better looking and more productive trees.

Dewberries thrive best under the same soil conditions as do loganberries and blackberries, but prefer warmer temperatures during the growing season. They, too, need considerable water to produce good yields of fruit.

Mulch strawberries to conserve moisture.

Either nitrate of soda or sulphate of ammonia is quickly available and therefore the trees will get benefit from the fertilizer immediately.

# CROSS-WORD PUZZLE



- Horizontal.
- 1—A preposition
  - 2—An indefinite article
  - 3—A leveling strip put on before the lifts of a keel
  - 7—A Scandinavian god
  - 9—To regard studiously
  - 10—An organ
  - 12—A lap robe
  - 14—A place to store grain
  - 15—Window accessories
  - 17—A thick liquid
  - 19—To plunge or immerse
  - 20—A colleague
  - 22—A slender bar
  - 24—To exact money for the support of the government
  - 25—To transfer for a consideration
  - 26—Unable to perceive sounds
  - 28—A girl's nickname
  - 30—Prefix signifying "to or toward"
  - 31—This or that female
  - 32—A yen
  - 34—A jewel
  - 36—A pronoun
  - 37—The uniting of the parts of a wound by stitching (surgical)
  - 40—Arboreal monkeylike animals
  - 42—To permit
  - 43—A gold coin of the United States
  - 44—A money introduced into England by the Danish invaders
  - 45—One who strikes
  - 47—To revolve round a central point
  - 50—A pronoun
  - 51—Unfilled
  - 52—Human ingenuity
  - 54—An East Indian dipterocarpaceous timber tree
  - 55—negative
  - 57—Total
  - 59—The back of anything
  - 61—Part of the foot
  - 63—A preposition meaning "in favor of"
  - 64—A hard-shelled dry fruit
  - 66—One who affirms solemnly
  - 68—A dance step
  - 69—A combustible mixture used for illuminating
  - 71—To come in
  - 72—A kind of fish
  - 73—A mile
  - 75—Consumed
  - 76—To declare
  - 77—Open vessels of wood or metal
  - 79—A country in Asia
  - 81—A possessive pronoun
  - 82—For example (Latin initials)
- Vertical.
- 1—A color
  - 2—Upon
  - 3—Exclamation
  - 4—A negative connective
  - 5—To propel along the surface of
  - 6—Practically
  - 7—Passes along
  - 8—A track worn by a wheel
  - 9—A policeman
  - 11—An insect
  - 13—Grand Army of the Republic (initials)
  - 14—To mingle
  - 16—To behold
  - 18—To plunder
  - 19—Any of several species of sounders (pl.)
  - 20—To peep
  - 21—To act insanely
  - 23—Times of light
  - 24—A preposition meaning "addition"
  - 25—A blind
  - 27—Pertaining to the thigh
  - 29—Part of the verb "to be"
  - 31—A mug
  - 33—Enthusiastic
  - 35—Pertaining to a wall
  - 38—A city in Germany on the Danube river
  - 39—A noun suffix denoting "agency"
  - 40—Part of the body
  - 41—A rodent
  - 45—To make senseless
  - 46—The female of the sheep (pl.)
  - 48—A river in northwestern Belgium
  - 49—A masculine name
  - 50—Exists
  - 52—Parts of amphitheatres
  - 53—Groups of one more than two
  - 56—A co-ordinating conjunction
  - 58—"face" (slang)
  - 60—To strike with fear and reverence
  - 62—Ever (contraction)
  - 63—A fairy
  - 65—A slight tag forming an appendage
  - 67—A Siamese coin made of pewter
  - 68—To compensate
  - 70—A habitual drunkard
  - 72—To butt or strike against violently
  - 74—To smear with a sticky substance
  - 76—To lose firmness or elasticity
  - 78—Near at hand
  - 80—That is (Latin initials)

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The solution will appear in next issue.

Solution of Last Week's Puzzle.

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

### HOW TO SOLVE A CROSS-WORD PUZZLE

When the correct letters are placed in the white spaces this puzzle will spell words both vertically and horizontally. The first letter in each word is indicated by a number, which refers to the definition listed below the puzzle. Thus No. 1 under the column headed "horizontal" defines a word which will fill the white spaces up to the first black square to the right, and a number under "vertical" defines a word which will fill the white squares to the next black one below. No letters go in the black spaces. All words used are dictionary words, except proper names. Abbreviations, slang, initials, technical terms and obsolete forms are indicated in the definitions.

## PRIZES STIMULATE INVENTIVE GENIUS

The simple expedient of offering prizes of \$50 has resulted in the discovery that there are 152 amateur inventors in England whose inventions have a commercial value. The Institute of Patentees in London offered prizes for the best inventions in several classes, and about 500 inventions were submitted from which four major prize winners were selected. The 152 inventions will be submitted to various manufacturers, asserts the Philadelphia Public Ledger.

The major prizes were awarded to the inventors of a kettle with a lid that will not fall off, a portable fire, a roto-scope based on the theory of relativity for gauging the speed of machinery, and a machine for bending rods and tubes.

Sir William Grey-Wilson, head of the institute, is an inventor of renown, and his house is full of his handicraft. One of the most ingenious is in the chicken house. A few grains of corn are placed in a tin beneath the perches. When the chickens wake and peck at the corn a spring is released which opens the door of the house.

Some of England's unemployed recently became seekers of hidden treasure. The first job to which several scores of men were assigned was that of excavations at the Roman Richborough castle, near Deal, which work is designed partly to solve the mystery of a great pile of concrete substance within the center of the ruins, the Boston Transcript says.

Bronze brooches and pins, believed to have been used by the women of those days for fixing up their hair, were unearthed recently, as well as parts of bronze statues, chains and an embossed gold ornament, also probably worn by women. About ninety Roman coins were also dug up by the excavators, among them being a gold piece of the Emperor Arcadius dating from 388 A. D. to 395 A. D.

## Electrocute Rats

Rats became a pest around an electric power station just outside Toronto, Canada. The engineers rigged up a device fastened to the end of a high-tension wire near the ground. A piece of tin was placed beneath. To get the cheese used for bait Mr. Rat steps on the tin, completing the circuit, and his career ends right there. Scores were killed in a single night.—New York World.

## No Wonder

The new baby had cried almost continuously for three weeks. Even Harold was disturbed. It seemed to the lad every where he went he heard the cries of his baby brother. He had heard a lot about storks carrying babies to happy homes and remarked, rather sarcastically one evening after listening to the baby's wails. "Well, it is no wonder that they chucked him out of heaven."

# LIVE STOCK NEWS

## SELECT BREEDING HERD FOR SPRING

While some hog raisers have already selected their breeding herds, there are many that are still undecided as to what sows they will keep to produce next year's pig crop.

No doubt the question as to how old a gilt should be before taking her place in the breeding herd, is foremost in the minds of many. This is more a matter of development than of age. When a gilt has reached a weight of approximately 200 pounds, the chances are that her body is developed sufficient to not be affected by the burden of pregnancy. However, care must be taken to supply feeds enough of the right kind.

Successful breeders find that where early breeding is accompanied with sufficient growth-promoting feed, the gilts so handled make better brood sows than those bred later in life. Only sows from large and vigorous litters should be selected for breeding animals.

Whether to use old sows or gilts is no longer a problem with many for it is a common practice to fatten and market the brood sows as soon as possible after the spring litter can be weaned. To depend entirely upon undeveloped sows for the spring's pig crop is not a practice to be recommended, however common it may be. Small, undernourished litters are the almost inevitable result.

A study made among various swine breeds on representative Iowa farms showed that two-year-old and aged sows farrowed 23.9 per cent and 29.83 per cent respectively, more pigs per litter than yearling sows, while their pigs were 9.38 per cent and 12.08 per cent respectively larger than those of the yearling sows and their gains were 26.31 per cent greater.

The boar, like the sows, will be more satisfactory if allowed to become well developed and vigorous. A pig, born in February or March, that is well developed, may be used in a limited way in November or December. Failure to observe caution in the management of a young boar invariably results in weak pigs and an early loss of breeding power.

## Skim Milk Is Excellent Food for Growing Pigs

Skim milk is one of the best foods for growing pigs, to which may be added cornmeal, wheat middlings and ground oats. If enough skim milk is not to be had, a mixed grain feed of 32 pounds each of cornmeal, ground oats and wheat middlings, to which is added four pounds of oilmeal, making 100 pounds of the mixture, supplies the needed food ingredients. With considerable skim milk, the oilmeal may be omitted. Ground grains are fed as slops, ear corn may be fed in addition and, as fattening time approaches, corn is made a much larger part of the ration. Where only one or two pigs are kept, they are usually fed such household food wastes as are available, to which sufficient grain is added to keep them growing, and, in the summer, green stuffs are given to supplement and economize in grain. Pasture materially helps in saving feeding costs. Young pigs should be kept growing but no attempt should be made to keep them fat.

## Salt Is Necessary Item in Ration for Animals

The best way to salt live stock is by permitting them to help themselves at will. Either common, brick or rock salt may be used; however, if common salt is used it is advisable to protect it from the weather, in that rains will dissolve it, and, of course, wash it away.

The matter of whether live stock can be raised with or without salt has been the basis of many an experiment. Those experiments have usually resulted in added support to the contention that salt is a necessary item in any ration. While live stock will live a considerable time without salt, nevertheless they will not give as profitable returns from feeds consumed as will live stock receiving salt, in fact animals have been known to show a general lack of thrift and vigor owing to the lack of salt.

## Live Stock Squibs

Wean pigs when eight weeks old.

Breeding stock should never be used to hog down corn, as they will get too fat.

In fattening stock for the market, it's always best to keep them just a little hungry; they'll gain faster for it.

Guard rails in the pig pen keep the sow from mashing her young.

Don't count your pigs before they're weaned unless you have them on clean ground.

Placing the ewe and lamb in a pen by themselves will eliminate much worry on the part of the ewe, for if she is in with a group of other ewes she will be continually fretting and moving about during the first day or two trying to watch over her lamb and protect it.

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## Ovation Accorded to "Babe Ruth's Brother"

The biggest tiger in the world, so I believe, resides in the Calcutta zoo. I saw him there.

And they also point out to you the granite shaft which marks the site of the infamous "Black Hole," in which 123 out of 146 British soldiers were smothered one summer night.

But stranger than these things was the report of a baseball game played in Calcutta in July by sailors from Uncle Sam's warship lying in the harbor, says Girard in the Philadelphia Inquirer. I am indebted to our fellow-townsmen, William Lancaster Jenkins, consul general at Calcutta, for this report which appeared in the Calcutta Statesman:

"In America there is a great man named Babe Ruth—a veritable Jack Hobbs, in fact—who apparently has several brothers. At all events, several batsmen representing the navy took the pitch with a concerted yell, 'Here's Babe Ruth's brother!'"

## Sunday School Record

James Frankfield, a member of the Grace Lutheran Sunday school at Bethlehem, Pa., has a record of attending Sunday school every Sunday for 19 years without an absence. He braved blizzards and disregarded illness to be in his seat every Sunday during that period. Ruth Schnable of the same church is a runner-up for the record with 17 years without an absence.

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