

## **JULY**

### **By Ken Solomon**

#### **"Cocks and Hens"**

The cock pheasant never did play a large energy role in spring reproduction, and he is even less active in July and August. Because the reproductive season ends in July, the cock has little to do this summer, except complete the feather molt he started in June. He has lost weight each month since last February's blizzards, but in July he can begin preparing his body for next winter. It's never too early to begin thinking about next winter. The poor hen will have to wait until September to prepare for winter.

After the energy demands of egg laying, nesting, incubation, reneating, and raising chicks, the hen is in poor physical condition. Summer will not allow her to rest. She must raise her chicks and begin molting all her feathers. These will cost her 15% of her body weight, or a 25% loss since egg laying began in April. In July her chicks are 2 to 6 weeks old, and she needs energy for brooding and keeping them well fed. The hen will also expand her activities from just around the nest to an area 71 acres in size. Depending on the number of reneating attempts, and the total number of eggs laid, the hen could easily lose 30% of her weight by late August. Compare that to the maximum 16% weight loss of the cock.

#### **"Summer Air Conditioning"**

Birds -like dogs and cows- can not sweat to air condition their body. They must pant (rapid inhaling and exhaling) to remove excess body heat. For birds it is called "gular flutter." Unfortunately, it does require the bird's metabolic rate to increase, which in turn produces more body heat. Gular flutter easily removes more heat than it produces. But if outdoor temperatures exceed the pheasant's body temperature (107 degrees), gular flutter can not dissipate the total heat produced by the weather and by gular flutter. The pheasant's temperature then rises and it dies. Because of the hen's poor physical condition, summer heat can kill more hens than did winter's cold.

Pheasant chicks have a heat production rate 2.4 times higher than their parents. So how can they survive the hot summer? A chick's air conditioning cannot remove 2.4 times more heat. Fortunately the chick's advantage over an adult is in its smaller size. It losses more heat directly through its body (as opposed to panting). Geometry class taught you that a small ball has more surface area to volume than a big ball. With the greater surface area, the small chick can lose heat faster than the large adult. The chick may produce twice as much heat, but it can also lose it twice as fast.

#### **"Chicks"**

Pheasant chicks will be 2 to 10 weeks old in July and August and a good number will be dead. The first of July when chicks are 2 weeks old, 25% have died since hatching. When 7 weeks old in August, 33% are dead. At 10 weeks old, up to 48% are dead. The

reasons for this annual die-off are unknown, but may be due to: 1) the poor breeding condition of some hens after a tough winter, 2) the early or lateness of nesting, 3) the number of reneating attempts made by the hen, 4) the susceptibility of chicks to cool spring temperatures, 5) summer heat, 6) chemical spraying for insects, or 7) all the above.

### **"Chick Molting and Weight"**

After their June hatch, pheasant chicks begin growing flight feathers, and are capable of short flights at 2 weeks old. In early July (3 to 4 weeks old), they have replaced their yellow down with feathers looking like that of the dull brown hen. The cocks and hens are the same size and color. In August (6 weeks old), chicks begin a post juvenile molt which will eventually give them their adult plumage. The molt will be completed when chicks are 17 to 18 weeks old (late October).

The chick's greatest percentage weight gain occurs during its first and second weeks when the daily gain is 8.1% and 6.3%, respectively. As the chick gets larger, it gains a smaller percentage: at 6 weeks - 3.2%, 12 weeks - 1.0%, and 20 weeks - 0.5%. The chick of course can not continue to gain 8.1% of its weight each day. As it gains weight, a larger portion of its energy intake must go to maintaining the weight already gained, and a smaller portion to producing weight. Each gram of muscle contains 0.8 kilocalories, and requires 1.14 kilocalories to produce. This is a food to muscle conversion rate of about 70%.

### **"Chick Foods"**

During the summer, the chick's diet continues to differ from that of adult. Insects comprise considerably more of the chick's diet, and weed seeds more of the adult's diet. Chicks consume 36.3 and 35.1 percent insects in July and August compared to the adult's 10.2 and 9.4, respectively. Low availability of insects from the time of the chick's hatching (90% of diet at 1 week old) to 10 weeks old is one factor in the high mortality of chicks through the summer.

Nature also provides a supply of protein in foxtail and wheat. In July and August the small-grain harvest is at its peak and waste grain is everywhere. Foxtail and wheat comprise 52% of the chick's diet. The protein content of foxtail is 18% and wheat 14%. The adult's diet is 38% wheat. In September, both adults and chicks will shift from wheat to corn as corn harvesting begins.

### **"Fertility"**

Summer is a time of relaxation for roosters but a tough time for hens. The cock has completed reproductive functions, his annual molt, and has no chicks to raise. The hen is busy trying a second or third time to hatch a first nest, or raising young, and beginning her molt. These drain the hen's energy reserves (fat and muscle) to their lowest level of the year. By August she will lose 25% of her April weight. More hens may die now than died last winter. Her chances of dying increases if she herself was hatched late last year,

if last winter was severe, if this spring weather delayed her nesting, if she has had to renest again and again, and if this summer is hot.

Although most breeding is complete by July, the rooster will produce active semen until late August. This is to service any late laying hens. Since the energy required to keep the rooster sexually active is small, he can begin producing fat for next winter. The hen, without a hatched nest, can produce eggs into September. September temperatures though soon force the hen to use energy for warmth, not eggs. With their third hay cutting, farmers report seeing hens incubating nests of only 5 or 6 eggs.

### **"Speeding Chicks"**

The pheasant chick's energy flow is like an engine running 100 mph compared to the adult's engine plodding along at 41 mph. Of course the adult uses more energy than a chick because the adult has more body to maintain (1,000 grams compared to 25 grams). But based on per gram weight (comparing a 1,000-gm adult to a 1,000-gm chick); a chick consumes 2.4 times more food and energy than an adult. This high metabolic rate is necessary to provide the chick with the production energy needed for growth.

The amount of energy needed by the chick for growth, feather production, and maintenance is unknown. Using white leghorn chickens for comparison, and assuming pheasants use half of the energy used by chickens (based on size and volume differences), a 1-week old pheasant chick requires 12 kilocalories per day. A 10-week chick uses 80 kcal per day (about half a Snickers candy bar). As the chick grows so does its energy intake. In July (2 to 6 weeks old), the weight of food in the chick's crop is 1.2 grams. In August (6 to 10 weeks old), the crop weights 4.3 grams.

### **"Hail Storms"**

Whether it be winter's blizzards and -30<sup>0</sup>F windchills, spring's heavy rains and embryo-killing 92<sup>0</sup>F or 35<sup>0</sup>F temperatures, summer's +100<sup>0</sup>F and hail storms, or fall's ice storms, weather does play a large part in determining the size of the pheasant population. In July, concern seems to be with hail storms. Such storms can kill both adult and young pheasants, and can leave a long path devoid of any birds. Concerned citizen will often complain that the state should restock the county with domestic chickens (pheasants). Fortunately hail storms rarely cover more than a couple townships, and those pheasants outside the storm's path will move into and repopulate the area within a couple years. Pheasants will easily move two or more miles a year. And if they find the habitat they need, they will stay in the new area. And those birds pioneering a new area, devoid of other birds, may have greater nesting success than if they had stayed in their old area. Nesting success is density dependant, i.e. the fewer birds in an area the larger the percentage of the hens that will have a successful nest. Releasing domestic birds in the area will repopulate the area slower than the wild birds can, and releasing domestics does negatively affect the nesting success of the wild stock.

### **"Pheasant Diseases"**

Diseases are not considered a major limiting factor of pheasant populations. Wild pheasants are generally free of common poultry diseases such as pullorum, coccidiosis, New Castle poultry cholera, blackhead and others. However, as shown by the presence of encephalitis antibodies in the blood of wild birds, pheasants are susceptible to equine encephalitis, or sleeping sickness in years of high mosquito populations (Trautman 1982).

Diseases may be a potential problem in areas where pheasants are raised in captivity, then released into the wild. These domestic pheasants, which receive feed medicated to prevent outbreaks of poultry diseases, may be carriers of such diseases. Their release into the wild may then transmit the diseases to wild pheasants which have not had the benefits of medication.

### **"Brood Rearing Area"**

Brood rearing areas center around the site of hatching. For the first 3 weeks the area ranges from 10 to 30 acres. At this time the chicks can fly, and the area expands as their ability to fly increases. In June and July the chicks use the same cover types that were used for nesting: weedy patches, hayland, cropland edges, roadsides, railroad ROWs, shelterbelts, and wetland edges. By late August the home range of the chicks exceeds 70 acres. Of course the harvest of alfalfa and small grains at this time of year causes the ranges to shift around.

### **"Plant Brood Habitat"**

When considering what you can do to help pheasants on your land, you first think of nesting cover, and winter cover with food plots. Have you considered brood cover? Since brood cover generally consists of the nesting cover, little thought is given to specialized brood cover. But small plantings for the chicks may increase their survival over the standard grassy nesting areas. Since the chicks' diet is over 90% insects, the brood cover plantings should be plantings for insects. And remember that annual weeds harbor more insects than perennial plants. The winter food plot you planted this spring?... consider leaving half of it undisturbed next spring. By letting the annual weeds grow next spring (take care of the thistle, but leave the rest), you'll attract many insects into the old food plot. It may attract the grasshoppers that you hate and the chicks love, but it will also attract the beneficial insects you both need.

### **"Plant for That Bug"**

Pheasant managers in England have done considerable work finding out what specific areas chicks prefer for insects. First they determined that their chicks ate no fewer than 22 groups of insects, and that they preferred caterpillars of sawflies and Lepidoptera (butterflies) over any other insect. They also determined that hay and oat fields contain greater preferred insects than corn and soybeans, so planting more for hay and oats will increase chick survival. Broadleaf weeds also attract more preferred insects. By not spraying (herbicide or insecticide) 2 to 6% of each crop field, they allow more broadleaf

weeds and subsequently more insects to survive for the chicks. Research continues into finding the specific plants that increased caterpillar populations. In the future, planting these specific plants would increase chick survival.

### **"Brood Activity"**

During early mornings when grass is wet with dew, pheasant chicks can be found along roads or in open spots within and along field edges. They want to stay dry and do not run through wet vegetation. This is a good time to pick up some needed grit and the seed and insects along the road. They prefer open cover when feeding, but heavier cover for loafing during midday. Although feeding occurs in all types of cover, they prefer recently cut fields of hay or grain. Woody cover is valuable to broods for shade, and its use is proportional to how high the temperature. Small trees and shrubs are use more frequently than tall trees and hedgerows. Broods use unmowed grasslands and weedy cover for roosting (sleeping) cover.