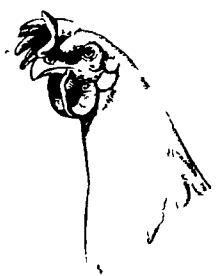


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<b>Penn State</b> <b>Poultry</b> <b>Pointers</b>			
Tom Dimick			Ag Engineering
Bill Weaver	Donald Singletary	Andrew Yersin	

### AIR QUALITY AND POULTRY PERFORMANCE

William D. Weaver, Jr.  
Department of Poultry Science

Poor air quality in the poultry house, especially during colder months, is normally associated with elevated levels of ammonia.

Researchers have well documented the fact that ammonia levels above 25 parts per million (ppm) significantly increase feed-to-gain ratios and reduce body weights. Research under controlled conditions has also shown that body weight can be reduced .25 pound and feed conversion increased 4 percent (8 points) at market age for broilers when ammonia levels are maintained at 50 vs. 0 ppm. This can amount to approximately 250 pounds of live weight and 320 pounds of feed, or as much as \$75 for each 1,000 broilers produced.

It has been our experience that producers tend to underventilate during the colder months in an attempt to conserve fuel. However, records from many individuals show that those who ventilate more and consequently burn more fuel make more money per bird than growers that overconserve on fuel and underventilate their buildings.

Furthermore, investigators have

shown that birds vaccinated with Newcastle disease virus and exposed to either 20 or 50 ppm of ammonia have significantly higher infection rates than birds vaccinated and placed in an ammonia-free environment. Ammonia at levels of 40 ppm, and in some cases as low as 10 ppm, have been shown to significantly alter and damage the tracheal mucous membranes. Birds exposed to these levels of ammonia had a greater number of e. coli organisms in their lungs than those not exposed to this gas.

Other research shows that air sac condemnations are over 4 percent higher when ammonia is maintained at 50 ppm when compared with an environment void of this gas. Certainly ammonia has been demonstrated to be a significant stressor, especially in combination with other respiratory challenges, and must be maintained at levels below 25 ppm during brooding and below 50 ppm after 28 days of age in order to ensure desired performance.

While conducting an ammonia level survey in a number of broiler houses several years ago, we recorded levels in some cases well above 100 ppm. When discussing this problem with colleagues in other areas of the country, they reported making readings of well over 200 ppm.

Ammonia levels in this range will cause significant growth depression and respiratory compli-

cations. When litter pH is above 7.0, only heat, moisture, and nitrogen supplied by uric acid are needed to produce ammonia in the broiler house (i.e., water + uric acid + heat = ammonia).

Unfortunately, under current management practices, heat (recommended brooding and growing temperatures) and uric acid (bird excreta) cannot be significantly changed or reduced. Therefore, moisture must be controlled to reduce the production of ammonia. This must be done through proper waterer management (nipple drinkers have significantly aided this process) and with mechanical ventilation.

My next article will discuss the proper operation of the negative pressure ventilation system to control moisture and consequently ammonia during the winter months.

September has always been considered by me to be the busiest month of the year because there is so much to harvest. But this year it will be October that is busiest as we plan to move later in the month.

I've already put some 50 flower plants from the garden into pots. They are stored on the back porch for the time being and I'm hoping our six black cats and kittens don't break them. They can gingerly walk around them without touching them. However, the three kittens are quiet playful and certainly can damage fragile plants.

Lately I've been hauling baskets of tomatoes to my Amish neighbors. As I grew the plants from seed, they are just now bearing abundantly and I've already canned all that I need. You see, there was a large carry over from the previous year and I do not need any more.

We expect to have a big sweet potato crop if the few plants that I robbed are any indication. With my fingers I probe around the roots and I've been finding very

large sweet potatoes. Despite the dry weather the vines have completely covered 18 feet of the garden. The watermelon and white potatoes are now difficult to find.

To add to the busy season, my husband decided that "now" was when he wanted his cataract operation. Our youngest daughter took off from her job and came home. He spent eight hours in the hospital and when the patch was

removed from his eye the next day, he was amazed to find that he could see fine without glasses. But, as he has been blind in one eye since birth, it was a long 24 hours for him. Being fed and led around is no fun. I'm sure that in time he would have adjusted and become more independent.

It certainly is a miracle when we consider what modern surgery can accomplish!

## PFU To Washington

**HARRISGURG** (Dauphin Co.) — Congress must make unfinished agricultural issues a priority during the closing days of the 1991 session, according to more than 150 family farmers from throughout the country who were in Washington September 21-24.

Members of Pennsylvania Farmers Union (PFU) and officers participated in the legislative effort sponsored by the National Farmers Union.

Improving federal dairy policies topped the list of concerns expressed by the delegation. Congress is now considering legislation which would implement a program to boost the prices paid to dairy farmers by keeping supplies in line with demand.

Farmers Union members support a supply management approach known as "two-tier" under which farmers could receive a fair price for their base level production and a reduced price for any excess production. But the group told Congressional leaders that the policy must enable farmers to be able to receive cost of production plus a reasonable profit.

The farmers also blasted the Bush Administration for driving a wedge between dairy farmers, producers of other commodities, and consumers.

"The Administration has stated that a supply-management dairy program would drive up retail prices, impact federal nutrition programs, and harm beef producers. These arguments are simply untrue," said Allen Deiter, president of the PFU.

Second on the lobbying agenda was a call for disaster assistance for producers whose crops were lost to weather disasters this year. Pennsylvania has been severely affected by the drought, and some crops were a total loss. The group said a well-funded disaster program and commitment by Congress to improve the Federal Crop Insurance Program are critical to the areas suffering crop losses.

Other issues discussed and supported by Farmers Union members included International Trade (North American Free Trade Agreement and GATT negotiations), wetland regulations, marketing and processing sectors of agriculture, and adequate funding levels for the Green Thumb older workers' program.

"I really want to commend the people who took the time to come to Washington this week," said National Farmers Union President Leland Swenson. "When members of Congress consider farm policies, there are no better people for them to hear from than real, working farmers."

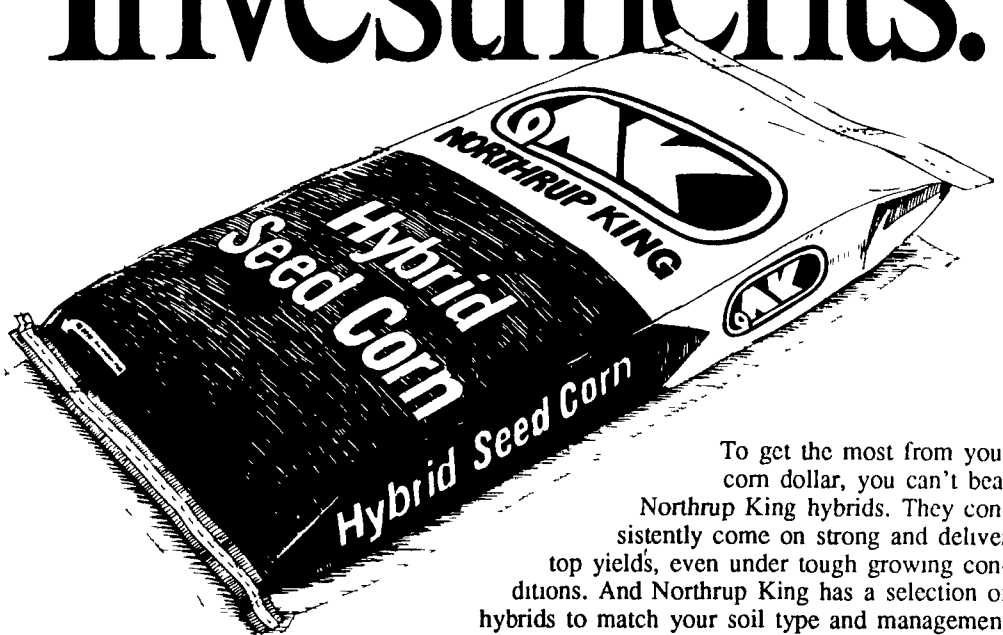
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## N8727 RM: 118-122

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## N6330 RM: 108-112.

If you're looking for a very high yielding hybrid that performs well as medium-to-low populations, put this one on the top of your list. This corn has a superior performance records on coarse to medium textured soils and exceptional drought stress tolerance. It has a flex ear that adapts well to lower populations. Recommended for timely harvest.



To get the most from your corn dollar, you can't beat Northrup King hybrids. They consistently come on strong and deliver top yields, even under tough growing conditions. And Northrup King has a selection of hybrids to match your soil type and management practices. So this year, go with seed corn you can really put stock in. Northrup King hybrids.

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