Table 1. Apparent Ca and P retention and total Ca and P excreted.

Source	Level	ACaR	APR	CaE	PE
D3	20	57.8	63.0	1.55b	1.03
D3	37.5	58.4	62.5	1.53	1.04
D3	87.5	58.2	63.6	1.54	1.01
D3	137.5	59.1	63.3	1.49	1.01
Mean D3		58.4	63.1b	1.53	1.023b
25(OH)D3	20	59.3	63.3	1.48a	1.01
25(OH)D3	37.5	59.0	64.5	1.54	1.01
25(OH)D3	87.5	59.0	64.4	1.50	0.98
25(OH)D3	137.5	59.0	64.6	1.51	0.98
Mean 25(OH)D3		59.1	64.2a	1.51	0.995a
D3+25(OH)D3	50+37.5	58.8b	64.2	1.535b	1.00
D3+25(OH)D3	50+70	60.8a	65.7	1.465a	0.97
Mean D3+25(OH)D3		59.8a	64.9a	1.500	0.985a
Mean Factorial		58.7b	63.6b	1.518	1.009b

a, b=P<0.05

Key Words: Metabolism, Vitamin, Excretion

707 Differences in amino acid digestibility in soybeans processed by different methods. T. Shi[1,2], H. M. Edwards, Jr.[2], G. M. Pesti*[2], and R. I. Bakalli[2], [1]*Shandong Academy of Agricultural Sciences*, *Jinan, Shandong, China*, [2]*University of Georgia*, *Athens, GA, USA*.

Three samples were obtained to investigate the influence of soybean processing method on the chicks' response to phytase supplementation. Corn (53.61%), soybean meal (37.47%), & soybean oil (5.49%) based diets (with 0.1 % Cr2O3) were fed to 3 replicate pens of 10 broiler chicks each in battery brooders for 16 days. Solvent extracted, expeller or extruded soybean meals were substituted for 50% of the entire diet. On day 16, ileal contents were gently removed from the posterior two-thirds of the ileum. The samples were freeze dried and assayed for amino acids. Only LYS, MET, CYS, THR, TRP & ARG were included in these analyses. If the amino acids were considered separately (11 error degrees of freedom), only LYS digestibility appeared to be affected by phytase (p<0.006), and there was no significant source by phytase interaction (p>0.20). However, if the amino acids were considered together in one ANOVA (66 error degrees of freedom), there were clear differences in amino acid digestibilities (ARG=88.2±1.5, CYS=57.0±4.0, LYS=87.2±2.0, MET=82.0±2.9, THR=73.7±3.0, TRP=84.5±1.9, p<0.013) and a very significant source by phytase interaction (p<0.002). There were no significant differences in chick growth or feed utilization between chicks fed the three soybean meals.

Table 1. Avg. amino acid digestibility in 3 SBM's (LYS, MET, CYS, THR, TRP & ARG)

Phytase	Solvent	Expeller	Extruded
0	84.5±3.4	72.1±5.0	75.8±3.8
1200	74.3±5.3	82.0±5.3	81.6±4.6
Avg	79.4±2.6	78.1±3.2	78.7±2.3

Key Words: Amino Acids, Digestibility, Phytase

Production, Management & the Environment - Livestock and Poultry: Poultry Management, and Environment

708 Evaluation of hydrated lime as a litter treatment at three application rates for broiler chickens. J. P. Blake*, J. B. Hess, K. S. Macklin, and C. A. Wilson, *Auburn University*, *Auburn, AL*.

A total of 1120 commercial broiler chicks (Cobb X Ross) were randomized with 70 birds assigned to each of 16 environmental chambers (2.44 × 2.44 × 2.44 m). Birds were fed a corn-soybean meal starter (1.5 lbs/bird; 22% CP, 3087 kcal/kg), grower (3.0 lbs/bird; 20% CP, 3131 kcal/kg), finisher (4.0 lbs/bird; 17.5% CP, 3197 kcal/kg) and withdrawal (c.a. 3.0 lbs/bird; 16.5% CP, 3219 kcal/kg). Treatments comprised a control (CON) with no litter treatment and hydrated lime (HL) at a commercial application rate equivalent to 50, 100, or 150 lbs/1,000 ft2 of floor space with each treatment assigned to four chambers. New pine shavings (54.42 kg) were placed in each pen. Feed and water were provided ad libitum under 24 hrs continuous light. Birds and feed were weighed at 21, 42 and 49 d to determine growth and feed performance. Litter and air quality samples were obtained for analysis initially and on day 7, 14, 21, 28, 35, 42 and 49 of the experiment. Ammonia measurements were conducted using a closed container of specified dimension inverted over the litter bed and determined using a Drager CMS Analyzer equipped with a remote air sampling pump. No differences (P>0.05) in growth performance (body weight, feed consumption, or feed efficiency) occurred during the 49-d experimental period due to treatment. Litter pH for the HL treatments was significantly higher (P<0.05) through day 21 as compared to the CON. Initial pH of the litter on day 0 for CON and HL at the 50, 100, or 150 rates were 6.35, 12.45, 12.82, and 12.82, respectively. By day 21 pH measurements were 7.25, 8.92, 9.38, and 9.45 for the CON and HL at the 50, 100, and 150 rates, respectively. Afterwards, there were no differences in pH due to treatment. Results indicated no significant (P>0.05) changes in ammonia levels due to the HL treatments. Results indicate that the application of HL on clean shavings resulted in an initial increase in litter pH (c.a. 50% higher) that continued through day 21 (c.a. 21% higher). HL failed to support any reduction in ammonia volatilization. Litter sample analysis did not indicate an increase in the amount of nutrients retained due to treatment. Litter moisture increased from a low of 8.9% to 26.4% by day 49 with no differences between treatments.

Key Words: Hydrated Lime, Litter Treatment, Ammonia

709 Evaluation of Poultry Guard™ litter treatment at three application rates for broiler chickens. J. P. Blake*, J. B. Hess, K. S. Macklin, and C. A. Wilson, *Auburn University*, *Auburn, AL*.

For each of two experiments a total of 1120 commercial broiler chicks (Cobb × Ross) were randomized with 70 birds assigned to each of 16 environmental chambers (2.44 × 2.44 × 2.44 m). Birds were fed a corn-soybean meal starter (1.5 lbs/bird; 22% CP, 3087 kcal/kg), grower (3.0 lbs/bird; 20% CP, 3131 kcal/kg), finisher (4.0 lbs/bird; 17.5% CP, 3197 kcal/kg) and withdrawal (c.a. 3.0 lbs/bird; 16.5% CP, 3219 kcal/kg). Treatments comprised a control (CON) with no litter

treatment and Poultry Guard™ (PG) at a commercial application rate equivalent to 50, 100, or 150 lbs/1,000 ft^2 of floor space with each treatment assigned to four chambers. New pine shavings (54.42 kg) were placed in each pen. Feed and water were provided ad libitum under 24 hrs continuous light. Birds and feed were weighed at 21, 42 and 49 d to determine growth and feed performance. Litter and air quality samples were obtained for analysis initially and on day 7, 14, 21, 28, 35, 42 and 49 of the experiment. Ammonia measurements were conducted using a closed container of specified dimension inverted over the litter bed and determined using a Drager CMS Analyzer equipped with a remote air sampling pump. No differences ($P>0.05$) in growth performance (body weight, feed consumption, or feed efficiency) occurred during the 49-d experimental periods due to treatment. Litter pH was significantly lower ($P<0.05$) for PG treated pens as compared to CON and this effect continued at the 100 and 150 rates until termination of the experiments at 49-d. Overall reduction in pH as compared to the control ranged from approximately 5 to 65% and was dependant on level of application, bird age and other environmental influences. Results indicated that the PG treatments did not elicit a significant ($P>0.05$) reduction in ammonia in either experiment.

Key Words: Poultry Guard, Litter Treatment, Ammonia

710 Litter bacterial levels associated Poultry Guard™. K. S. Macklin*, J. P. Blake, J. B. Hess, and R. A. Norton, *Auburn University*, *Auburn, AL*.

Litter treatments are commonly applied to litter to reduce ammonia and bacterial levels. Two trials were performed in which the effects of Poultry Guard™ (PG) on litter bacterial counts, percent moisture and pH were measured. Both trials were performed using clean pine shaving litter that was placed into 16 environmental chambers (2.44 x 2.44 × 2.44 m). Chicks were placed at a density of 70 chicks/pen. In both experiments there were four treatments, with each treatment getting four pens. The treatments comprised of a control (CON) and (PG) being applied at 50, 100 and 150 lbs/1000ft^2. Both experiments had litter collected weekly from three areas within each pen for 7-weeks. Bacteriologically total aerobic, anaerobic, Staphylococcus, and C. perfringens levels (cfu/g) were determined. Also the presence or absence of Campylobacter and Salmonella was determined. Bacterial counts (CFU/g) and percent moisture data were transformed using log10 and arcsine transformations, respectively. The data was analyzed using GLM with $P<0.05$ and significant means were separated using Tukey's HSD. The results for the two trials showed that both the 100 and 150 lb application rates kept the pH lower then the CON and 50 lb rate until day 49. There was differences ($P<0.05$) in the moisture level between the treatments. The bacterial numbers between the two trials showed that there was no reduction in any of the numbers between the four treatments over the 7 weeks in which they were measured ($P<0.05$).

Key Words: Poultry Guard™, Litter, Bacteria

711 Pasteurization of chicken litter with steam and calcium oxide to reduce colonization and incidence of *Salmonella typhimurium*. M. Farnell*[1], A. Byrd[2], L. Sunkara[1], K. Stringfellow[1], P. Anderson[1], J. McReynolds[2], J. Carey[1], A. Bell[2], R. Stipanovic[2], and D. Caldwell[1], [1]*Texas A & M University*, *College Station*, [2]*USDA-ARS*, *College Station, TX*.

Commercial poultry are raised on absorbent bedding materials such as wood shavings or rice hulls. These materials are costly to remove and replace in an environmentally sound manner. Therefore, multiple flocks of chickens often are raised on the same bedding material for as long as 1 ½ to 10 years. Good management practices and decaking machines considerably extend the useful life of the bedding material. However, down time between flocks is only 5-14 days which does not allow a desired degree of pathogen reduction residual of the previous flock. As a consequence, day of hatch chicks with naïve immune systems are placed onto contaminated litter. These practices often result in costly infections from coccidia and other opportunistic pathogens. Additionally, foodborne pathogens such as *Salmonella* and *Campylobacter* survive in the litter to be transmitted from bird to bird and flock to flock via coprophagy or fomites. The nursery industry pasteurizes soil with steam to reduce plant pathogens. Another method adds calcium oxide to nursery soils to capitalize on the resulting exothermic reaction that occurs when the chemical interacts with water. These techniques are likely to reduce pathogens if used in commercial poultry houses. In this study, a steam sterilization cart simulated conditions used by the nursery industry to treat Salmonella typhimurium inoculated litter. Homogenized litter was exposed to steam for 0, 5, 30 or 120 minutes. Calcium oxide was used at concentrations of 0, 2.5, 5 or 10 %. Results showed that all treatments significantly reduced Salmonella typhimurium colonization by at least 3 orders of magnitude. However, most treatments reduced colonization levels to undetectable levels even when samples were enriched. These data demonstrate two novel techniques for reducing bacterial pathogens in poultry litter. Soil pasteurization potentially offers an environmentally sound means to reduce the pathogenic load and output of poultry waste.

Key Words: Chicken, Litter, Pasteurization

712 Evaluation of Envirobed® litter product for broiler production. R. M. Hulet* and T. L. Cravener, *The Pennsylvania State University*, *University Park*.

High quality litter products are essential for optimizing broiler efficiency and good health. Litter products must be able to absorb moisture, have low levels of mold and bacteria, allow efficient growth and development, and not damage skin or foot pads. Envirobed® is a "recycled-fiber" product made from chipped cardboard tubes with dust and fine particles removed. Broilers (864) were placed at a density of 14.35 birds/square meter into twenty-four pens containing either pine wood shavings (PS) or Envirobed® litter (E) at a depth of 5 cm. Birds were weighed at 0, 14, 28, and 42 days of age and feed consumption, conversion and percent mortality evaluated. At the end of the study, litter moisture and condition was evaluated. No statistical difference in body weight was found between birds grown on the PS (2.74 Kg) or E (2.70 Kg) litter by 42 days of age. PS reared birds at 14 and 28 d had greater body weight than the E reared birds. Overall feed intake was significantly less for birds on the E litter (4.78 kg) than for PS reared birds (4.93 kg). Therefore, feed conversion was significantly improved for the E reared birds (1.775) when compared to the PS reared birds (1.801) at the $P<0.054$ level. At forty-two days, percentage moisture for PS litter was significantly greater ($P<0.06$ level) than for the E litter (48 vs 43%, respectively). In Summary, Envirobed® was found

to be an acceptable litter product when compared to PS for rearing broilers to 42 days of age.

Key Words: Broiler, Litter, Growth

713 Use of ferric sulfate for ammonia reduction in commercial broiler houses. C. W. Ritz*[1], L. A. Harper[1], B. D. Fairchild[1], M. Czarick[1], J. Pavlicek[2], and V. Johnson[2], [1]*The University of Georgia*, [2]*Kemira Water Solutions*.

Ammonia concentration in poultry houses is a production issue of concern. Previous work has correlated negative bird performance with poor indoor air quality due to ammonia. Ventilation has been the key means of removing ammonia from poultry houses but the use of litter treatment products that lower pH are also commonly applied. Acid-based products, though effective for short-term ammonia reduction, have not proven to be long-term solutions to ammonia reduction due to the amount of product required to chemically bind ammonia, problems of application when birds are present, and the corrosiveness of the material. Consequently, new types of litter treatment are needed along with other mechanisms to reduce in-house ammonia concentrations and subsequent house emissions. The purpose of this study was to evaluate the effectiveness of a new litter amendment containing ferric sulfate compared to an alum-based litter amendment. Since alum is a commonly-used litter amendment in the broiler industry and at the request of the participating poultry company, in this study the alum treatment product was used as the Control and the ferric sulfate as the Treatment. Both Treatment and Control were applied at the same time and rate of 100 lbs per 1000 ft^2. Litter analyses for total nitrogen, ammonium nitrogen, nitrate nitrogen, percent moisture, pH, dry matter content, and soluble salts were taken throughout the study. Aerial ammonia concentrations were measured using time weighted detection tubes and gas-washing bottles. The ferric sulfate amendment was, on average, superior to the aluminum sulfate amendment in reducing ammonia concentrations in the houses during the first 10 to 12 days after bird placement, with mean ammonia concentrations for the ferric sulfate and alum at 13-19 ppm and 21-26 ppm, respectively. The ferric sulfate product improved retention of nitrogen in the litter over the control. No differences were noted in mortality, body weight, or feed efficiency between the two treatments.

Key Words: Ferric Sulfate, Ammonia, Broiler

714 Egg yolk and serum antibody titers, and manure nutrients of broiler breeder hens immunized with uricase or urease. Adrizal*[1], P. Patterson[2], and T. Cravener[2], [1]*University of Jambi*, *Jambi, Indonesia*, [2]*The Pennsylvania State University*, *University Park*.

This study evaluated if broiler breeder hens immunized with uricase, urease, or uricase+urease would develop IgY titers against these antigens to prevent manure-N degradation and NH_3 release. Hens (76, 43-wk, Ross × Arbor Acre) kept in individual cage were randomly assigned to PBS control, uricase, urease, or uricase+urease antigen. Hens were immunized with the antigens in the breast muscle i.m. on d 0, 7, and 14. Blood samples were drawn via the wing vein of 7 hens/treatment on d 0 (before injection), 4, 9, 12, 17, 21, and 24 for serum IgY titer analysis. Eggs were collected for 28 d for yolk IgY titer analysis. Manure samples were taken on d 0, 7, 14, 22, and 29 for solids, total-N, NH_4-N, organic-N, P, K, pH, and NH_3 measurements. Elevated egg yolk uricase-IgY titers were observed after the 2nd injection ($P \leq 0.0001$) and remained significantly higher than the PBS or urease treatment from d 9 to 24. An egg yolk urease-IgY titer was noticed after the 1st injection ($P \leq 0.01$), then undetectable for 13 d, and elevated again on d 17, 21, and 24 ($P \leq 0.0001$) beyond the control and uricase treatments. Serum uricase-IgY response was obvious ($P \leq 0.01$) after the 1st injection, highly significant by d 9, and remained greater than the PBS or urease treatment until d 28. The serum urease-IgY titer response lingered later in comparison with uricase-IgY. Only at 24 and 28 d were urease titers significantly greater than the PBS or uricase group. Hens immunized with uricase or urease responded well with both egg yolk and serum titers. Combination antigens were also significantly greater than the PBS controls, but less than the individual uricase or the urease. Manure NH_3 volatilization showed no clear relationship with the IgY titers. Only manure total-N concentration indicated greater N retention on d 29 from the uricase+urease combination (63.5 g/kg, DM basis) compared to the others ($P = 0.07$).

Key Words: Antibody Titer, Manure Nutrient, Broiler Breeder Hen

715 Dietary sodium bisulfate, humate and zeolite for broiler chickens: Impact on performance, litter nutrients and ammonia flux. P. Patterson*[1], T. Cravener[1], E. Wheeler[2], P. Topper[2], and D. Topper[2], [1]*Department of Poultry Science*, [2]*Department of Agricultural and Biological Engineering, The Pennsylvania State University*, *University Park*.

A broiler feeding trial was conducted to evaluate the effects of dietary Sodium bisulfate (S), Humate and Zeolite on growth performance, litter nutrients and litter ammonia flux. Cobb chicks (1728) were placed in 48 pens (0.0699 m^2/bird) with new pine shavings, and fed a commercial control diet from 0-14d. Six dietary treatments were fed from 14-44 days including a control, 0.75% S (S75), 0.50% S+0.75% Humate (S50H75), 0.50% S+1.0% Zeolite (S50Z100), 0.75% S+0.75% Humate (S75H75) and 0.75% S+1.0% Zeolite (S75Z100). Body weight (44d) was significantly higher for birds fed S75 (3.01 kg) vs. control (2.94 kg) or S50H75 (2.94 kg) diets. Feed intake to 44d was greatest for the S75Z100 vs. the other treatments, except S75H75 (P=0.0015). Overall FC was lowest for S75, highest for S50Z100 and S75Z100, and intermediate for the control and other treatments (P=0.0076). Mortality was unaffected by the dietary treatments and averaged 4.11%. Ammonia flux measures from the 23d litter (mg NH_3/m^2/min) were highest from the control litter, but linearly reduced by increasing levels of dietary S (P≤0.0001). The same trend was observed at 41d with S75 treatments averaging 4-fold less NH3 than the controls, and S50 treatments 35% less (P=0.0019). Litter pH was significantly reduced by dietary 0.75% S treatments compared to the control. Litter solids at 42d were significantly less (46.6%) for the S75 dietary treatments vs. the control and S50 treatments (mean 53.6%, P≤0.0001). On a DM basis litter Na (P≤0.0001), K (P=0.0004) and P (P=0.0286) were greater from dietary treatments with 0.75% S, and less from the control and 0.5% S treatment birds. Litter sulfur levels showed a linear trend with greater concentrations tied to greater dietary S levels (P≤0.0001). Overall, improvements in growth performance, and litter ammonia flux with the 0.75% S diet suggest promise for commercial application.

Key Words: Litter, Ammonia Flux, Broiler Performance

716 The potential for plants to trap emissions from farms with laying hens: 1. Ammonia. P. H. Patterson*[1], Adrizal[4], R. M. Hulet[1], and R. M. Bates[2], [1]*Department of Poultry Science*, [2]*Department of Horticulture*, [3]*Department of Agricultural and Biological Engineering, The Pennsylvania State University*, *University Park*, [4]*University of Jambi*, *Jambi, Indonesia*.

The potential of plant vegetation to trap ammonia (NH_3) discharged from a layer house through the exhaust fans was evaluated at the Pennsylvania State University Education Research Center in September 2005. Five tree species were planted in pot-in-pot containers in five rows downwind of the house fans, and in two control rows upwind of the hen house. Each row included one plant (upwind) or two plants (downwind) per species per row. When measured with a photoacoustic NH_3 detector at the same elevation as the fan (1.5 m), NH_3 concentration decreased sharply with greater distance, from 51.54 ppm at 0 m (at the fan) to 1.89 ppm at 5.5 m (between row 2 and 3), 0.27 ppm at 10 m (after row 5), and 0 ppm at 50 m (control). This trend was also observed with the dosi-tubes and photoacoustic detector at the 0.3 and 3.0 m elevations. Significantly lower NH_3 concentrations were recorded when the trees were present downwind of the fans compared to when the trees were removed (16.45^b vs. 19.35^a ppm) suggesting a portion of the atmospheric NH_3 was being held by the plants. This was further supported by a marked decrease in foliar N status of the plants with greater distance from the source. Plant species also differed with willow appearing to be the most responsive species and effective as an NH_3 trap.

Key Words: Plant, Ammonia, Foliage Nitrogen

717 The potential for plants to trap emissions from farms with laying hens: 2. Ammonia and dust. Adrizal*[1], P. Patterson[2], and M. Hulet[2], [1]*University of Jambi*, *Jambi, Indonesia*, [2]*Department of Poultry Science*, [3]*Department of Horticulture*, [4]*Department of Agricultural and Biololgical Engineering, The Pennsylvania State University*, *University Park*, [5]*Department of Natural Resource Ecology and Management, Iowa State University*, *Ames*.

The potential of plant vegetation to trap ammonia (NH_3) and dust (particulate matter [PM]) discharged from a layer house through the exhaust fans was evaluated at the PSU Poultry Education and Research Center in July 2006. Poultry and livestock NH_3 emissions are a concern for air quality, surface deposition, and animal and human health. PM is a human health concern as well and regulated by the US-EPA in non-attainment areas. Five tree species were planted in pot-in-pot containers in five rows downwind of four hen house fans and in two control rows upwind of the fans. When measured with a photoacoustic NH_3 detector at fan elevation (1.5 m), NH_3 concentrations decreased sharply ($P \leq 0.0001$) with greater distance, from 71.11 ppm at 0 m (at the fan) to 2.07 at 5.5 m (between row 2 and 3), 0.32 at 10 m (after row 5), and 0.07 ppm at 50 m (control). This trend was also observed with dosi-tubes and the photoacoustic detector at 0.3 and 3.0 m elevations. Significantly lower NH_3 concentrations were recorded in the presence of the trees compared to when the trees were removed at both 0.3 and 3.0 m elevations, suggesting a portion of the atmospheric NH_3 was being trapped by the plants. This was further supported by greater foliar N concentrations in plants when downwind of the fans ($P \leq 0.0001$). Dust concentrations sampled downwind of the fans were greatest at 2.5 m and decreased linearly to 50 m ($P \leq 0.0001$). Plant PM-2.5, 10 µm, and PM-total washed from the foliage showed the sample significant linear trend with greater distance from the fans. Plants also showed unique species differences in their capacity to trap and hold NH_3 and PM that can be applied in practical recommendations. In conclusion, these findings indicated vegetative buffers are capable of trapping NH_3 and PM fan emissions from poultry facilities.

Key Words: Plant, Ammonia, Dust

718 Vegetative buffers for fan emissions from poultry farms: ammonia, dust, and foliar nitrogen. R. M. Hulet*[1], Adrizal[1], P. H. Patterson[1], and C. A. B. Myers[2], [1]*The Pennsylvania State University*, *University Park*, [2]*Berks County Extension*, *Lebanon, PA*, [3]*Capital Region Extension*, *Lancaster, PA*, [4]*USDA-NRCS*, *Harrisburg, PA*, [5]*USDA-NRCS*, *Corning, NY*, [6]*Iowa State University*, *Ames*.

A study evaluated the potential of trees planted around commercial PA poultry farms to trap ammonia (NH3) and dust particulate matter (PM). Hybrid poplar (HP), hybrid willow (HW), Norway spruce (NS) and Streamco willow (SW) were planted in several rows downwind of the exhaust fans of one turkey, two layer, and two broiler farms (2003 to 2004) and sampled in 2006 for DM, nitrogen (N), and PM analysis. Concentrations of ammonia were passively measured downwind of exhaust fans (eight hours). Plant N levels did not differ among farms, but were significantly affected by distance from the fan ($P<0.001$), especially when comparing ammonia (ppm) at 0 m (12.01) with 11.4 m (2.59), 15 m (2.03), and 30 m (0.31). Farm type affected foliar DM ($P< 0.0001$) but not N. Both foliar DM and N were influenced by species ($P<0.0005$), where HP, HW and SW showed a greater response than NS. Location also affected foliar N with significantly higher values noted nearer the fans than the controls (3.19 vs. 2.71 %). Plant species had no effect on foliar PM at greater than PM10µm, but NS and HW trapped PM2.5µm, PM10µm and total PM significantly better than the other two species. The effect of location was seen only in PM >10µm, where the plants nearer fans held more total PM than controls (0.021 vs. 0.0005 mg cm-2). The capacity of plants to trap and benefit from ambient ammonia around commercial poultry farms and their potential as dust traps were observed in the present study and suggested the buffer's function to reduce farm emissions. HP, HW, and SW seemed to be appropriate plants to absorb aerial ammonia nitrogen whereas NS and HW appeared to be more effective dust traps.

Key Words: Vegetative Buffer, Ammonia Uptake, Plant Species