

# UNL POULTRY NEWS

## Recent Activities:

October 21, Ashley Bigge (PhD. Student) and Asha Scheideler (undergraduate) volunteered at the Merrick County Ag Showcase in Central City, NE. to give a 40 minute interactive presentation to 6 classes of 6th graders about egg development and safety. The students were able to candle eggs of different quality and ask questions throughout the presentation.

Thankyou to NPI for their generous support of educational handout materials for this event.

Newsletter Editor

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## ALL ABOUT TURKEY

Turkey Facts—Dr. Sheila Purdum

There will be over 240 million turkeys grown in the U.S. this year. Less than 15% of those birds are sold as whole birds for consumption at meals such as your Thanksgiving dinner. The majority of turkeys are further processed into deli meats, ground turkey, breast products for consumer demand in those markets. But the consumers cost for their Thanksgiving turkey based on USDA reported retail prices has actually decreased over the past 8 years. Exports of turkey are also significant with Mexico being the major importer of turkey from the U.S. Unfortunately turkey export totals have also declined over the past 5 year period due to Tariffs and other embargos. Turkey production has become a specialized agriculture business. However niche markets for holiday turkey production have become more popular in certain segments of the U.S. market. Turkeys consume over 2 million metric tons of soybean meal per year and over 1 million bushels of corn in the US per year. The top 8 states producing turkeys include

### Top Eight States

- MN - 42.0 million birds
- NC - 32.5 million birds
- AR - 31.5 million birds
- IN - 20.0 million birds
- MO - 19.0 million birds
- VA - 16.8 million birds
- IA - 11.9 million birds
- CA - 11.0 million birds



Year	Domestic Consumption of Turkeys (Billion lbs)	Retail Prices for Frozen Turkey (\$/lb)
2012	5.03	\$1.62
2013	5.07	\$1.65
2014	5.05	\$1.60
2015	5.14	\$1.51
2016	5.38	\$1.55
2017	5.35	\$1.58
2018	5.29	\$1.50
2019	5.30	\$1.51

## History of Turkey Production in Nebraska Dr. Sheila Purdum

Nebraska has a long history of turkey production starting with the a cluster of producers in Eastern Nebraska who formed the Eastern Nebraska Turkey Growers Association in 1936 and a second group in central Nebraska that started a processing facility in Gibbon Nebraska that eventually grew into the Nebraska Turkey Growers Association which celebrated 75 years in production before they closed in 2008. A quick perusal of the Nebraska Poultry Hall of Fame pictures in our departmental conference room 201 displays many of both the early and more later leaders of Nebraska turkey growers. Joe Claybaugh Sr., Extension Specialist at UNL (1925-1955) and Roscoe Hill of Hill Hatchery were early leaders who educated farmers to diversify with turkey production. Dick Shinn Sr. started ranging turkeys in the sandhills near Dunning, NE in the 30's-40's and then passed on production to his son Rich Shinn until the early part of this century when the NTGA closed the doors. Eastern Nebraska supported very active turkey production in the Waverly area with the leadership of Lloyd Bevans, his sons and Mervel Reed (breeder flocks). Bill and Brian Bevans both entered turkey production as well with facilities near Prairie Home in Eastern Lancaster County. Bill Bevans sold the last commercial flock of turkeys in the state April, 2019. Bevans is now growing chickens for Smart Chicken.. It was a sad day when NTGA closed the Gibbon plant and remaining producers had to seek out-of-state processors. Hopefully a new chapter has begun with the recent opening of a turkey grand-parent stock operation on a former Shinn turkey ranch and a grand-parent hatchery in Beatrice, NE owned by Hendrix/Hybrid Turkeys. Nebraska will always be fertile territory for turkey production with our abundance of quality feedstuffs, land to build houses and a safe source of water for turkey production.

(Thankyou to Bill Bevans for assistance with this article).



Although Nebraska's commercial turkey production has diminished over the past several years, the Nebraska Veterinary Diagnostic Center (NVDC) has taken steps to better serve the turkey industry. The NVDC is now a National Poultry Improvement Plan (NPPI) authorized laboratory along with being accredited by the American Association of Veterinary Laboratory Diagnosticians, the United States Department of Agriculture and the National Animal Health Laboratory Network. Over the past few years the NVDC has established a cadre of diagnostic tests for poultry, many of which are specific for turkeys. These tests include blood tests to detect infections caused by pathogens such as Salmonella, avian influenza virus, Newcastle disease virus and mycoplasmas. The NVDC also conducts state-of-the-art tests to detect many poultry viruses, bacteria and fungi. We are happy to report that the turkey industry has taken advantage of our services. In the fiscal year ending June 2020, the NVDC conducted an estimated 50,000 blood tests from turkeys. The samples continue to flow into the NVDC and we expected that we will exceed that number in the current fiscal year. The NVDC receives samples from turkey farms in Nebraska, Kansas, the Dakotas and other neighboring states. Those at the NVDC find it truly gratifying to contribute service to such a thriving and vibrant industry.

Written by Dr. Don Reynolds, DVM, Professor UNL Veterinary and Biological Sciences

## Turkey Research at the University of Nebraska—Past and Present—Dr. Sheila Purdum

The Department of Poultry Husbandry started in 1922 at the University of Nebraska and merged into Animal Science in 1977. For nearly a century poultry extension and research has served the turkey industry of our state and region. Dr. Tom Sullivan (deceased), was a prominent turkey nutrition researcher at UNL from 1958-1992. He published many articles leading to turkey nutrition recommendations for minerals and early FDA clearance studies on Histomonostats for turkeys. Drs. Glenn Froning (deceased) and Ted Hartung conducted research on turkey products and processing. Dr. Earl Gleaves (deceased) diligently assisted Nebraska turkey farmers in their efforts to modernize commercial turkey production for his career from the 60's thru 1990. Early research was conducted at the Havelock Farm from the 1930-50's and at the Rogers farm from 1966-1973. A new modern campus facility was built in 1963 at the corner of East Campus Loop and 38<sup>th</sup> St. One remaining building – F House, of the initial 8 structures remains in poultry research after several major renovations. It is currently utilized for both chicken and turkey research needs. More recent turkey research has focused on product quality (Dr. Gary Sullivan) and turkey welfare concerns (Dr. Sheila Purdum). It is interesting to note that the research Dr. Tom Sullivan conducted for many years remains some of the most cited research pertaining to turkey mineral nutrition in the world.

Current work by Dr. Gary Sullivan and his team in collaboration with Dr. Samodha Fernando and Dr. Byron Chaves is characterizing the spoilage microbiome of turkey products. This research team uses DNA sequencing to identify what bacteria are present in spoiled meats, to identify the specific spoilage organisms causing spoilage, and investigate methods to mitigate their outgrowth. DNA isolated from bacteria from meat samples can act as a “fingerprint” that gets matched to a database of bacteria. So far, the team has uncovered *Pseudomonas* as a main spoilage organism in a variety of products, both raw and ready to eat. Once thought to be an obligate aerobe, meaning an organism that needs oxygen for growth, this genus surprised the team by growing in vacuum packaging. Further investigation has focused on the suppression of this taxa through use of modified atmosphere packaging (MAP). Inclusion of carbon dioxide showed inhibition of *Pseudomonas*, providing an avenue of shelf-life extension for processors, targeted against this organism. The team continues to investigate spoilage organisms and targeted methodology to extend shelf-life of turkey products increasing their sustainability and making sure more of the turkey produced ends up on your plate.

By: Rebecca Furbeck and Gary Sullivan



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