A Brief History of Turkey Research and the Role of the Beltsville Agricultural Research Center

Over 300 million turkeys are produced annually thanks to research at BARC

In the early 1930s, most turkeys had dark colored plumage, were medium to large in size (18-25 pounds) and had a narrow breast without much meat. Based upon a survey, consumers wanted a smaller turkey (8-15 pounds) that would better fit home refrigerators, ovens and small families. In addition, they wanted a turkey that had more white meat and one that had no dark pin feathers.
Therefore in 1934 BARC began a breeding program to create this new type of turkey. Four different breeds (White Holland, White Austrian, Narragansett, and Bronze) and Wild Turkey were used to create this new turkey.

In 1947 the new turkey made its commercial debut, and
In 1951 it was officially recognized as a new breed by the American Poultry Association (Beltsville Small White).

The Beltsville Small White not only expanded the turkey market, it became the genetic foundation of practically every turkey sold today. Although extremely popular with the family consumer, the commercial consumer desired a bird with more breast meat. As a consequence, the Beltsville Small White was bred with other types to create the Broad Breasted White.

By 1965 the Broad Breasted White had taken over the turkey market. The Broad Breasted White fit the commercial niche for a turkey yielding larger breast muscle and, when slaughtered at a young age, it also fit the family niche for a smaller turkey.
However, because of their large breast size, Broad Breasted Whites require artificial insemination for reproduction. It has long been recognized that the ability to store turkey semen for 24 hours *in vitro* without a significant loss in fertility upon insemination would benefit the commercial turkey industry.

In the early 1980s BARC researchers, including current BA Associate Director Dr. Tom Sexton, developed semen extenders that can extend sperm life up to 10 hours prior to insemination. Even with these extenders, *in vitro* semen storage has yet to duplicate the microenvironment within the hen's reproductive tract known as the sperm storage tubules, which maintain viable sperm for up to 10 weeks.

Currently, Drs. Julie Long and Murray Bakst in the Animal Biosciences and Biotechnology Laboratory are characterizing the cellular and molecular mechanisms that allow sperm to remain alive for up to 10 weeks within the sperm storage tubules and only 8 to 10 hours outside the tubules. One interesting fact they discovered is that there is a difference in gene expression within the sperm storage tubules when sperm are present and when they are not. Genes may be identified that could be used to extend the sperm longevity.

For more information, contact Dr. Julie Long at Julie.Long@ars.usda.gov

Turkey Vegetable Soup

4 cups fat-free turkey broth
2 cups cooked turkey, cut into 1-inch chunks
1 can (14 oz.) tomatoes, undrained
1 medium zucchini, sliced
1 medium carrot, sliced
1 stalk celery, sliced
1 onion, sliced or chunked
1 cup green beans, fresh frozen
2 tablespoons pearl barley
1 tablespoon parsley flakes
1 clove of garlic, small
1 cup broccoli florets, fresh or frozen
1/2 cup peas, fresh or frozen
1 cup corn, fresh or frozen
salt and pepper to taste

In a 5-quart saucepan or pot, combine broth, tomatoes, zucchini, carrot, celery, onion, green beans, barley, parsley, garlic, pepper, and salt. Bring to a boil; cover and reduce heat to simmer and cook 20 minutes. Add turkey, broccoli, peas and corn. Cook additional five minutes.

Nutrient Content Per Serving (serves 6):
181 calories; 18 g protein; 2.5 g fat; 23 g carbohydrate; 29 mg cholesterol
Photo and recipe source: National Turkey Federation
For general nutrition information see the Nutrient Data Lab website:
http://www.ars.usda.gov/nutrientdata