

## Pork quality requirements and fatty pig production in East Asia

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The oldest pig in the world (8,000 B.C.) was produced by domesticating wild boars in Southeastern Asia (Thailand, Vietnam, Laos, southern China etc.). The oldest pig in Europe (4,000 BC) was found on the British Isles. Therefore, the history of pig farming in Southeast Asian countries (10,000 years) is older and longer than that in European countries. More than 50% of pork is produced in Far East and Southeast Asian countries, including China, according to the Food and Agriculture Organization's (FAO) recent production yearbook. In the world, 0.8 billion pigs are bred annually, 1.3 billion pigs are shipped, and more than 100 million tons of pork-meat are produced. According to the FAO, there are 1.5 billion cattle, 1.2 billion sheep and 1.0 billion goats in the world for meat.

Pig farming methods in old traditional European countries and pig farming styles in Far East and Southeast Asian countries were different. In European countries, pigs were fed forest acorns. However, in the Asian countries, the traditional way of raising pigs is to feed them with garbage (leftover food) from human living areas, agricultural land waste, and human feces. For this reason, many Asian peoples may have considered pigs to be unclean animals. Humans are omnivores, and like horses, we have the nature of herbivores that convert dietary fiber into an energy source through fermentation in the large intestine (cecum and colon). Short-chain fatty acids (acetic acid, propionic acid, butyric acid etc.) are produced from unabsorbed polysaccharides (cellulose, hemicellulose, pectin, lignin etc.). However, the human digestive system can not absorb short-chain fatty acids and polysaccharides produced in the large intestine. Therefore, human feces, which are mainly composed of bacteria and unabsorbed food components, are rich in nutrients (short-chain fatty acids, polysaccharides, proteins, vitamins etc.). Human feces can be converted by pigs into high-quality human foods such as proteins and fats. In Asian countries, moreover, traditionally farmed pigs are a valuable food stock available at all times of the year.

However, in Japan, which is one of the countries in the Far East and Southeast Asia,

with the exception of Okinawa (Okinawa was an independent kingdom for a long time), eating meat was prohibited about 1,200 years ago under the influence of Buddhist policy. Ancient Japanese stopped eating wild boar (there were no pigs in Japan at the time). In addition, the Japanese disliked traditional pig farming styles in the Far East and Southeast Asian countries, as they consider human feces to be unclean due to traditional primitive religions. Instead, in Japan, pig manure has been fermented and used as fertilizer for agriculture. There was a small revolution 150 years ago in Japan, when European pigs were introduced from the Western countries, and Western-style pig farming began.

In Far East and Southeast Asian countries, until recently, pigs were an expensive and special animal food eaten on ceremonial occasions rather than a daily food. Insects, seafood and birds (cheap animal foods) that are low in fat have been a daily diet for people, especially in the Far East and Southeast Asian countries. Asian peoples can easily get protein from insects, seafood and birds in their daily diet. That's why, in the Asian countries, pigs are a valuable livestock food, especially a special food that provides delicious fats to people who are deficient in fat, and an important offering to the gods during traditional festivals. Asian peoples preferred small and fatty pigs. In recent years, in the Far East and Southeast Asian countries, commercial breed pigs introduced from Europe and the United States has become a major practice, and Asian people are familiar with the meat of commercial pigs. Native breeds of pigs remain in remote areas of Southeast Asian countries.

The native pigs of the Asian countries will contribute to the achievement of the "Sustainable Development Goals: SDGs" advocated by the United Nations in 2015. In particular, it will contribute greatly to the achievement of goals 1 "No poverty", 2 "Zero hunger", 3 "Good health and well-being" and 15 "Life on land".

As mentioned above, 800 million commercial pigs are raised annually, 1.3 billion commercial pigs are shipped, and more than 100 million tons of pork-meat are produced. In Asian countries, native pigs have been raised on pastures such as buckwheat, clover, and gramineous fodder, as well as human food residues, farm residues, and manure. For this reason, the significance of the existence of Asian native breed pigs, which do not compete with humans for feed, is increasing in response to the food crisis that is progressing on a global scale.

In recent years, there has been a global shortage of phosphorus, potassium, and

nitrogen, which are the main fertilizer components, and the depletion of phosphorus is a particularly important problem. Livestock manure, including pig manure, is rich in phosphorus. Phosphorus in pig manure must be effectively utilized as an organic fertilizer. The ancient style of farming in Asian countries, in which each farmer raises pigs on a small scale and ferments the pig manure and supplies it to the cultivated land as organic fertilizer, is being reconsidered from the viewpoint of resource circulation and global environment preservation. Effective use of livestock manure stops the pollution of groundwater, surface water, ponds, lakes and oceans. Asian native pigs play a significant role in circular agriculture.

Epidemics such as foot-and-mouth disease, swine fever, African swine fever, influenza and so on are spreading on a global scale. The International Epizootic Office (OIE) advocates "One World, One Health". Outbreaks of swine epidemics not only take a toll on farmers economically, but some diseases can also infect humans. Controlling swine epidemics is extremely important not only for agriculture but also for maintaining human health. Asian native pigs are considered to be highly resistant to various infectious diseases, and are a valuable genetic resource for identifying disease resistance genes.

Thus, the native pigs of the Far East and Southeast Asian countries have important potential not only for food production and animal husbandry, but also for overcoming many global crises facing humankind. In my presentation, reviewing the Asian native pigs from the perspective of SDGs, and I will cover the breeds and history of native pigs in the Far East and Southeast Asian countries, as well as forecasts of pork market conditions in the Asian countries.