

Animal Husbandry Techniques in Biological Agriculture: The Case of Non-Ruminants

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Abstract

The techniques of biological breeding and animal husbandry employed in biological agriculture are characterized by certain requirements compared with more conventional methods. In particular, there is the avoidance of using synthetic materials so that the animal and its products contain no unwanted chemical residues. Another requirement is to maintain the animal in good health. This can be achieved largely by selecting rugged and durable species and breeds, adapting the animal's physiological needs to both habitat and environment, and implementing balanced feeding. When needed, natural therapies such as management of animal wastes is emphasized to minimize adverse effects on animal health and the environment. Nevertheless, health problems cannot always be avoided or resolved by preventive or natural methods. Occasionally, one must face certain realities of breeding and rearing that may require compromises. In this case, synthetic medications are permitted but only under strictly controlled conditions.

Principles of Organic Animal Husbandry

General principles of organic animal husbandry have been established by the International Federation of Organic Agriculture Movements (IFOAM). Consequently, French organic farmers need to address the following regulations and guidelines:

Choices of Breeds

The animal breed that one selects should be adaptable to the prevailing agroclimatic and ecological conditions, while preserving and managing genetic diversity.

Selection Criteria

Selection criteria must not interfere with, or modify, the fundamental behavior of the animals.

Farm Environment

The animals must be provided with conditions that are conducive to their health and well-being. They must have adequate daylight, good quality air, and sufficient space for movement and rest to accommodate their specific behavior.

Waste Management

The area occupied by the animals must be cleaned regularly with the waste materials removed and new bedding provided. A manure spreading plan for the farm should be developed as to fields, dates and amounts of manure spread. A record of NPK inputs from feeds, and outputs from wastes and effluents, must be maintained (C.O.R.P.E.N. type report).

Feedstuffs

Animal feeds must be obtained only from certified organic farming sources, or must be products that have received no chemical processing during production and storage. Some products may also be authorized as acceptable by the Ministry of Agriculture such as nutritional additives (e.g., vitamins and amino acids). If it is not possible to supply all the feedstuffs from organic sources the certification authority, with concurrence by the Organic Farming Quality Labels Commission, may allow an exception. For example, the Commission may specify which part of the ration could be supplied from non-organic sources.

Veterinary Care and Prophylaxis

Preventive care and maintenance are strongly emphasized through efforts to ensure optimum environmental and ecological conditions (i.e., housing and bedding), adequate feed-stuffs (i.e., both quality and quantity of feed), proper health (i.e., enhancing natural defenses and immunities). Vaccinations are limited to those required by law. Veterinary care is usually limited to alternative medical therapies such as homeopathy, aromatherapy, and phytotherapy. Occasionally, veterinary prescriptions may include synthetic vitamins and other authorized chemical products.

Poorly Resolved or Unresolved Problems

Since optimal conditions rarely exist, organic farmers are regularly confronted with problems that depend on external factors which are not easily controlled by the farmer. These problems are generally limited to the following four categories.

Genetic Problems

The poultry breeds and strains that are currently available are poorly adapted to the following:

- To grass runs, resulting in their droppings being concentrated in close proximity to breeding facilities, thereby increasing the probability of disease and parasites.
- To seasonal food supply imbalances particularly vitamins.
- To performance objectives and standards that are lower than for conventional rearing.

Food Supply Problems

Some organic feed sources have inadequate levels of vitamins and essential amino acids leading to imbalances in animal rations as evidenced by the following:

- Methionine is often deficient in the rations of organically-produced poultry causing a decline in performance (i.e., weight gain and carcass quality), increased health and sanitary problems, and poor feed-use efficiency.
- Lysine is frequently deficient in organic feed sources for swine rations which compels the farmer to seek higher quality proteins from non-organic sources (i.e., soybeans, fish meal and lactoserum).
- The natural vitamin (particularly the fat soluble vitamins) content of organic feed sources is subject to seasonal fluctuations and can be especially low during the winter. This prompts the farmer to supplement the ration with synthetic vitamins which are costly, may cause irregular animal performance, and increase the risk from excess vitamin intake.

Environmental Problems

Proper and regular removal of animal wastes and effluents from animal facilities are sometimes lacking. The most likely reason is that many animal breeding and rearing operations are not farms but strictly animal enterprises. Consequently, the vital link with the soil as an essential repository of animal wastes is not well-established. Paradoxically, the manures and effluents from conventional animal operations are extensively utilized by organic farmers to maintain the fertility and productivity of their soils.

Sanitary Problems

The current breeds and strains of animals that are available often lack robustness, vigor and resistance to disease and parasites. Consequently, under conditions of confinement and high population density they may be susceptible to health problems which are difficult to treat effectively with natural and alternative medical therapies. The recourse to use synthetic drugs and medications, even in limited dosages and treatments, is not a satisfactory solution to the problem for either producers or consumers because it could negate the organic product certification label.

Strategies for Improvement

In view of the principles of organic animal husbandry and problems which confront the industry, we believe that future research to improve breeding and rearing practices should focus on the following four issues.

Selection of Animals

Among the criteria to consider in the selection of animal breeds and strains are:

- Which animals can better exploit grass runs?
- Which animals can better utilize rations that are low in essential amino acids?
- Which animals are more robust and vigorous?

Management of Wastes and Effluents

A closer cooperative linkage between animal operations and crop production enterprises is needed to ensure the proper and regular recycling of animal wastes and effluents on farms to enhance soil fertility and productivity. Some version of a contractualized policy may be the best arrangement.

Quality of Feedstuffs

Organic animal husbandry needs to develop acceptable strategies and options for supplementing organic feeds low in essential amino acids with synthetic sources of lysine and methionine. This would help to ensure adequate levels of essential amino acids during critical phases of breeding, improve the utilization of natural organic protein sources (i.e., peas, field beans and lupines) and reduce the concentration of protein in rations when necessary without causing amino acid deficiencies. The inclusion of fat-soluble synthetic vitamins in rations would provide an important and beneficial aspect of preventive maintenance

Minimizing Sanitary Problems

Many feel that it would be helpful to compile an index of organic remedies using natural methods and materials that could alleviate or “cure” certain animal nutritional, digestive and physiological disorders which may be used in lieu of synthetic drugs.

Conclusions

Organic animal husbandry is at a cross-roads despite its legitimacy that is recognized and supported by our national institutions and the European Community. Our production methods must continue to improve and become increasingly efficient to satisfy two important criteria which, to some, may appear to be contradictory:

1. We must be credible in the eyes of consumers who are vitally concerned with food safety and quality of animal products. We must also enhance our credibility with environmentalists who would strongly object to “organic” breeding practices reverting to the “pen floor grating” model and all of its undesirable consequences.
2. We must be competitive especially with products that carry a pseudo “organic image” because of “quality” labels which allow them to be marketed as premium farm products. The positioning of legitimate organic products at the top of the price range means that we have an obligation to produce and market the very highest quality products that are available. This will help us to retain our current organic clientele and encourage others to become organic consumers.