

Analysis on Regulation Effect of Rural Breeding Industry Association on Livestock Pollution -Based on the Investigation of Breeding Behavior in Hubei YW Village for Poultry Industry

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Abstract—The flourishing social economy makes the intensive and industrialized livestock breeding likely from the individual and limited one. At the end of the twentieth Century, a large number of pioneers embarked on becoming rich by guiding the breeding of the entire village, which mostly triggered the serious pollution problems. Based on the participation in China investigation project held by Hubei Society of Social Sciences¹, the author is to make in-depth and specific investigation and analysis on the development of Rural Breeding Industry Association, and to have commands of the actual situation and specific role of the Industry Association in regulations of pollution from livestock and poultry, thus revealing all varieties of issues occurring in the existing Breeding Industry Association at the institutional and realistic level.

Keywords—Rural Breeding; Industry Association; Livestock Breeding Pollution; Governance of Rural Cultivation Pollution

I. INTRODUCTION

In Hubei Province, YW Village of GH Town first launched chicken farming among many. Until 1997, the chicken breeding continued to expand in accordance with the plan for making extra efforts on poultry production. It has developed into the well-known village for raising chicken, where there are 800 thousand chickens to be raised and 40 large-scale chicken farms. (Large-scale poultry farm refers to the one who breeds more than 10 thousand chickens.) All of the villagers mainly embark on breeding chicken for eggs and 80 tons of chicken manures are produced on average per day. Calculated by 40 kilograms of daily domestic sewage per capita, there are 20 tons of sewages produced by 500 households in the village, far less than one quarter of chicken manure. For the sake of regulating the behavior of cultivation pollution, XT Chicken Breeding Research Institute (also

called XT Chicken Industry Association) located in YW Village has formulated harmless treatment system of YW Village poultry farms, withdrawal time system of livestock farms, the system for using veterinary medicine and fodder of poultry farms, and the like. To answer the questions like what influences these systems will make on the surrounding chicken farms, how it is specifically implemented, whether the chicken raising behavior has been indeed regulated and the pollution from farming has been prevented, 38 chicken farms in the village are randomly selected for learning how the systems are executed concrete.

II. IMPLEMENTATION STATUS OF HARMLESS DISPOSAL SYSTEM

Large amount of poultry manure has been one of the main pollutants to water, threatening the health of soil and atmosphere [1]. Without the Harmless Disposal System, it will reduce the production even corrupt the crops. Because the appropriate dosage of livestock and poultry excrement of agricultural land is $25 \sim 50 \text{ t/hm}^2 \cdot \text{a}$ [2]. The harmless treatment system of livestock farms designated by Breeding Industry Association mainly stipulates to dispose animals dying from diseases in the breeding farms, excreta, accessories, garbage and contaminant in the hazard-free manner, in a bid to prevent the occurrence of pathogens and the spread of epidemic.

TABLE I. CONDITION OF 19 FARMS FOR HARMLESS TREATMENT'S

	Harmless Treatment	No Harmless Treatment
Households	24	14
Proportion	63.16%	36.84%

At present, the whole village is equipped with three to four flow unsettling workers involved in harmless treatment of poultry farms, instead of one worker set for one household. For some farmers, they think harmless treatment provided by the professionals necessary, while one third of them argue that

¹ The investigation project is China's survey project sponsored by Hubei provincial Party Committee Propaganda Department and launched by Hubei Society of Social Sciences, with the topic of Investigation on Disposal of Rural Domestic Waste in Hubei Province under the New Law for Environmental Protection (No:45152251). This paper is supported by the project of excellent academic dissertation of Wuhan University of Technology (Project No: 2016-ys-096).

"It doesn't make any difference brought by one dead" and they will incinerate and bury it presumptuously.

Of the farms for harmless treatment, six of them can be provided with low-price and convenient disposal attributed to their familiarity with the workers occupied in the farms hazard-free treatment. Additionally, eight of them will come for harmless treatment in the early stage of large-scale inspection to get away with punishment, and they will occasionally dispose by themselves. (It is presumptuously disposed mainly in the way of burning the dead chicken and burying them in the soil nearby. And excrement, packing, contaminant and non-disinfected waste in the plant or direct discard are perceived as the violations of harmless treatment system of livestock farms.) And additional two households who are found the dead chickens casually discarded at the gate of the chicken farm insist their use of harmless treatment. Excluding these 16 households, there are only 8 farmers who truly accept harmless treatment and not all of them absolutely conform to the regulations stipulated in harmless system, with mere two in possession of the complete set of standardized facilities for harmless treatment.

III. EXECUTION OF WITHDRAWAL TIME SYSTEM AND SYSTEM FOR THE USE OF VETERINARY DRUG FEED OF LIVESTOCK FARM

Withdrawal Time (WDT) refers to the interval from the stopped drugs on animals to allowed sales on the market. During this time, drug residues in animals are gradually metabolized and excreted and the animal food such as meat, eggs and milk can be safeguarded until the residue level drops below the limit value.

TABLE II. PURCHASING CHANNEL OF 38 FARMS²

	Technical Personnel ³	Town Retail Store	Person for regular village drug selling	Other ⁴
Households	26	12	14	4
Proportion	68.42%	31.57%	36.84%	10.53%

Varieties of feed additives, drug additives and the contents of related drug management are detailed in the withdrawal time system of poultry farming. Nowadays, the feed additives used in YW Village are allocated by the storeroom of Chicken Breeding Institute where the farmers basically buy the feed for the convenience of feed additive management. However, the different disease occurring and tough drug management results in the decentralized distribution. They may buy it from the town, from the drug sellers who take trolley near the chicken farm on a regular basis and even from the mobile technical personnel specializing in vaccinating chicken.

² Each household will buy drugs through two to three channels, so there are more than 19 households in total, similarly hereinafter.

³ The technical personnel in the village also sell the related veterinary products while guiding the breeding.

⁴ Additionally, they will buy the remaining drugs from the major farmers or group buying together with the major households because of low prices for large quantity.

In terms of the use of drugs, we are told by one farmer that they hardly read instructions and use medicine based on previous experience and they will consult the drug seller about which they do not understand. And they will call the technical personnel as a last resort. (Technical personnel here mainly refer to the persons specially responsible for guiding the livestock farming technology in cattle-grazing station.) As stipulated in veterinary drug feed system of livestock farms, farms shall buy with the official veterinary prescription and use the feed additives for preventing animal diseases approved by the Ministry of Agriculture and prescribed the course of treatment. No veterinary drug raw materials are allowed to directly add in the feed.

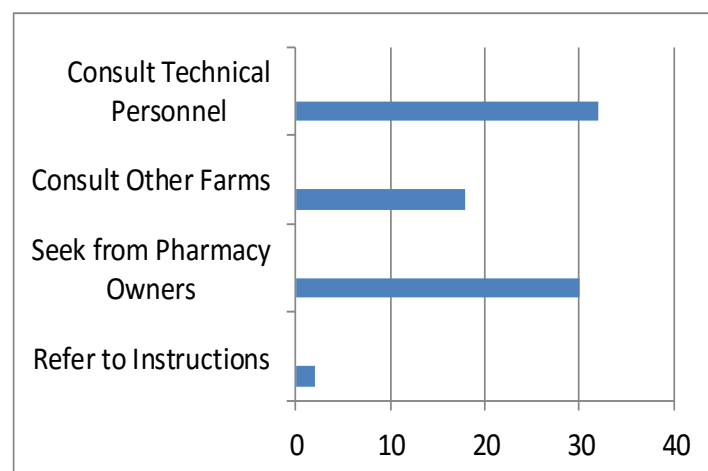


Fig. 1 Investigation on Medication Guidance of 38 Farms

With respect to the farmers' consciousness of drug uses, all of them will seek advice from technical personnel in the case of no choice in spite of large quantities. For the majority of them they will buy drugs independently by virtue of their breeding experience. One farmer tells us that they usually feed chick with drugs to prevent disease in the way of mixing them with feeds. (The drugs here mainly refer to antibiotics like norfloxacin granules for veterinary use. Mere two households among 19 are found to use traditional Chinese medicine patent prescription.) Their experience helps them buy all kinds of medicines and feed the livestock and poultry to prevent diseases. They will firstly consult the other farmers or pharmacy owner and then the technical personnel in case of disease attack or death on the large scale. Failing to provide the advice as doctors, both other farmers and pharmacy owner merely guide by experience, seriously affecting the drug use in the scientific and normative manner. At present, veterinary antibiotics play an indispensable in the process of food animal breeding from the perspective of China's food animal breeding mode, development status of animal disease, feeding management technology level and comprehensive economic level [3]. In this regard, it is the key to use antibiotics rationally, normatively and legislatively, thus addressing the problems threatening the food safety such as veterinary drug residues and drug resistance.

Comparing the pesticide control, education will be an effective policy tool for farmers to reduce the dosage of

prohibited pesticides [4]. Withdrawal time system is an important means to reduce drug residues and ensure food safety. But the farmer in YW Village scarcely regulate and implement the withdrawal time system and know little about the prohibited veterinary drugs prescribed by the country. (The prohibited veterinary drugs prescribed by the country are included in the List of Veterinary Drugs and Other Chemical Compound Prohibited for Food Animals formulated in No.193 Announcement published by Ministry of Agriculture of the People's Republic of China.) Of 38 farmers in the village, there are four households having basic understanding of prohibited veterinary drugs, six knowing the withdrawal time system and less than 3 involved in standard implementation of the system.

Certainly, government shall be responsible for supervision. We are told by one farmer in the routine sampling examination especially in the inspection of qualified products rate that there are several extremely large-sized chicken farms which specially provide the chicken for inspection. Even in the strict inspection and spot testing, two chicken farms with identical breeding behavior and the farmers closely affiliated to Village Head and Secretary can escape from the jaws of death, while those failing to play up to village cadres will sacrifice in the selective examination. It is impossible to address the livestock farming pollution in a short duration of time. It shall call for both the unremitting endeavor from the government and the villagers' courage to change to return the village where there are green hills and clear waters, birds chirping and fragrant flowers.

IV. CONCLUSION

The booming livestock and poultry industry has become the point providing the domestic rural economy with the most vigorous tailwind, and it is of great significance for ensuring the supply of consumers' vegetable basket and improving farmers' income and wealth [5]. It was found out that the social capital of YW village had been out flowed seriously, such as low levels of trust, weak sense of belonging, lack of awareness for involvement and so on. However, the shortage of guidance and planning for the development of livestock and poultry industry in China makes the spontaneously and purely market-oriented free development more likely, resulting in unreasonable industry layout and planting separating from breeding. As mentioned above, there is low environmental capacity chasing more breeding in YW Village, thus obstructing the healthy development of the industry itself. The failure in effectively disposing waste like excrement of livestock and sewage before they are recycled has severely affected the rural environment and hampered the sound development of the industry to some extent. The mismanaged wastes such as feces, corpses and waste water will deteriorate the production environment, and the health of livestock and poultry will be greatly penalized by the large quantity of pathogens, malodorous gases in high concentration and dust and even exposed to disease, thus posing direct threat to the production safety and leading to economic loss. Frequently, the environmental pollution arising from livestock and poultry breeding brings social problems, such as civil disputes caused by stench or water pollution in rural areas, which directly impedes the livestock and poultry business. And the industrial

comprehensive benefits are prevented from improving owing to the stagnant environmental protection on the breeding industry and the waste of livestock and poultry resources.

It is unadvisable to discuss social governance and public participation discards the social endogenous structure [6]. Environmental pollution caused by livestock breeding is the result from many comprehensive issues, and a series of problems can be found in prevention and control settings, recycling, supervision and supporting system. First of all, the supporting facilities used for preventing and controlling the livestock pollution are unfilled as they should, and there are few farmers with the complete set of facility. For the majority of them, the traditional feeding habits and experience still work for large-scale breeding. Even the equipped facilities will still set up a dilemma for them, including the phenomenon of idle facilities triggered by the failure in synchronizing maintenance and the risk of bankruptcy owing to high investment in environmental protection facilities. Secondly, the livestock and poultry breeding is still less recycled, and the livestock manure is used on a small scale owing to the changing rural production and life style, the restricted technology adopted by the utilization of the manure, the varying labor structure and the subsidy policy for the use of chemical fertilizer. Consequently, it brings the resource waste like livestock manure in quantity, thus polluting the environment. Additionally, there is absence of supervision on pollution. In this regard, it shall not merely expand all aspects covering the breeding behavior but also excavate from all farmers. It is found in the surprise inspection that those farmers who do well will be always checked. And the farmers will be warned by the letter pasted on the door in the routine supervision. They will embellish it for ingratiating themselves with leaders and still persist their old ways after the leaders leave, which will never work. Eventually, the supporting system of livestock farming is extremely flawed. At present, Regulations for Prevention and Control of Large-scale Livestock Breeding issued by the State Council in 2013 is the only one involved in pollution brought by poultry industry, while it is fragmentarily mentioned in Regulation on Animal Husbandry in Hubei Province by Hubei People's Government.

YW Village now is preventing the livestock farming pollution via emulating the patterns of industry association adopted by Australia, New Zealand, Europe and North America, but all of systems applied by Chicken Breeding Association in YW Village fail to achieve what it is expected. The industry association shall be more accredited, including the industrial rules and regulations, product quality testing, the formulation of technical standards and norms, technology promotion, government subsidies issued, quality certification and market supervision. However, the lack of human resources renders many rights controlled by the government departments and it is helpless with respect to something far beyond their capacities, thus bringing out loopholes in management and penalizing the industrial development. Mutual Trust in rural environmental governance is an effective adhesive, which is more flexible and humane than administrative control and market mediation. It makes more conducive to collaborative governance and cut the transaction cost [7].

To improve agricultural benefits, it is necessary to adhere to the road of comprehensive utilization and keeping ecological and recycled. For the livestock and poultry breeding industry, extra efforts shall be made in the comprehensive utilization of waste and it shall take the road of combining and balancing planting and breeding, to realize sustainable development, industrial optimization and upgrading. To this end, it's worth pondering how to exert the influence of breeding industry association on the industry and how to strengthen the environmental protection of poultry breeding behavior.

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