

IMPROVING FATTENING MANAGEMENT IN PROFESSIONAL SWINE FARMS BY ESTABLISHING THE MOST EFFICIENT FEEDING PLAN

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Abstract

Ensuring the conditions imposed by the integrated management of meat production in swine, involves the implementation of specific managerial measures to determine the expression at optimal parameters of the genetic capacity of commercial hybrids of swine exploited for meat production. This requires efficient management of nutrition, maintenance, thermal comfort and all microclimate factors, modern technologies in all systems that contribute to efficient production. The establishment of the most efficient feeding plan must take into account the production expected to take place, the financial possibilities of the farm, the production system but regardless of the system chosen on professional farms we consider that it should be taken into account that: young people introduced to fattening should be fed with balanced rations at discretion, because they make deposits of muscle mass to the detriment of fat deposits and fat pigs in the last period of normalized fattening, to achieve conversion rates of economic feed. The quantity and quality of feed administered to swine influences both the process of growing in youth and fat pigs and the quality of carcass and meat obtained from slaughtering animals, for these reasons we recommend a feed plan for meat production in four phases to obtain productive technical indicators and maximum economic.

Key words: fat pigs, professional farms, nutrition plan.

INTRODUCTION

Improving the integrated management of meat production obtained from swine farmed on professional farms requires the implementation of managerial measures such as:

- control of nutrition management;
- reducing the effects of short-term exposure to excessive or low temperatures;
- reduction of ammonia exposure;
- ensuring comfort and well-being during the fattening period. [5,9,12,18]

Ensuring thermal comfort can be achieved by administering wood chips as bedding for young people when thermal comfort is not ensured in the shelter or when fat pigs do not keep the rest area in the box in fattening shelters without microclimate control systems. Research shows that fattening swine prefer polluted but heated compartments when the air temperature was lower than the lowest estimated critical temperature ($P < 0.001$). When the air temperature was lower than the lowest estimated critical temperature, the pigs piled up but, as the air temperature rose, the pigs spent more time separately ($P < 0.001$) in the polluted but heated compartments. [4,10,11,17] It seems that the subdivided pigs were motivated to stay in the polluted compartments but heated rather to have partners than for thermal comfort. It can be stated on the basis of research that among fat pigs exploited in shelters without microclimate regulation systems, the delayed aversion to ammonia was weaker than the preference for thermal comfort. Summarizing the results of research published in the literature, the heat stress produced in fat pigs occurs when there are changes in:

- maximum critical temperature that varies due to the fact that fat pigs have different strategies to balance the balance between heat production and heat loss as the ambient temperature increases;

- behavioral changes in fat pigs at critical temperature variations when, the accumulation of fat pigs in the box decreases above 16⁰C, lying on the full floor at temperatures above 19⁰C;

- reducing the usable area per fat pig causes changes in behavior, disorganization of the box, agitation, altercations between individuals, establishing another group hierarchy.

To reduce the heat stress produced by fat pigs exploited in halls without controlled microclimate to improve production management it is recommended: [2,3,6,15]

- cooling the floor by spraying with water;
- increasing the number of vents in the case of natural ventilation of shelters for fat pigs;

- investments for the procurement of ventilation and microclimate control installations in the shelter

- cooling the shelters by installing drip humidifiers on the service corridors.

A new solution for cooling swine raised indoors proposed by us is to equip the building with floors made of special materials that keep the cool. [7,8,13]

Regardless of the cooling method, if the professional operation is to be efficient, any shelter must have its own ventilation and ambient temperature monitoring system. There are solutions to prevent and avoid thermal stress in fattening farms that require managerial measures, which can be implemented at any time of intensive industrial exploitation, to ensure the expression at optimal economic parameters of the hereditary dowry of fat pigs: [1,14,16,19]

- sufficient quantities of water;
- nutrition balanced according to the age and weight of the fat pigs;
- artificial microclimate insurance systems;
- modern maintenance technologies to ensure well-being and bliss.

MATERIAL AND METHOD

In order to establish the most efficient feeding plan in the professional swine fattening farms, within this scientific approach taking into account the genetic quality of the commercial hybrids that are exploited, studies were carried out to implement the most efficient nutrition, to ensure the accumulation of large amounts of protein in carcasses to the detriment of lipids at the most economical feed conversion rates. In this sense, the quality of the increase in discretionary feeding in the first fattening period of swine and normative fattening of fat swine in the second fattening phase was pursued, in order to obtain the best weight gain increases, with good conversion rates and to ensure according to the physiological needs imposed by age and weight of all operating conditions.

RESEARCH RESULTS

In order to establish an efficient feeding plan for a professional swine fattening farm, the following aspects must be taken into account:

- production of pork expected to take place;
- the financial possibilities of the holding;
- growth and fattening system of swine for which one opts.

Regardless of the system chosen in professional fattening farms, we consider that it should also be taken into account that:

- young pigs fed with balanced feed - make large deposits of muscle mass to the detriment of fat deposits, with feed conversion rates in average daily increase higher;
- in the first period of life the indices of conversion of fodder into meat are superior in youth compared to fat pigs in the second phase of fattening;

- the young fodder fed ad libidum achieves high average daily increases with low fat deposits in the composition of the increase;

For these reasons, we recommend for professional swine fattening farms, for the improvement of fattening management:

- feeding with granulated fodder, the youth at the introduction to fattening, because they have concentrated in a small volume, a large amount of nutrients that stimulate the growth rate under microclimate controlled conditions;
- feeding the youth at discretion, because it ensures the achievement of great increases and behavior of bliss, rest and lack of agitation;
- feeding front corresponding to weight category;
- sufficient quantities of feed to avoid overcrowding at feeders and maintain group hierarchy.

The quantity and quality of feed administered to swine regardless of category influences both the evolution of the process of growing in youth and fat pigs as well as the quality of carcass and meat obtained from slaughtering animals Taking into account both nutritional and practical considerations, we recommend that the feeding of swine for meat production be carried out in four phases in order to obtain maximum productive and economic technical indicators:

- pre-weaning phase from 6 days of the piglet until weaning;
- post-weaning phase from 8 kg to 30 kg;
- fattening phase I 31 to 60 kg;
- fattening phase II from 61 to 105 kg.

In order to obtain special results in the pre-filling phase, the choice of "prestarter" feed is of capital importance because it must ensure the energy level of 3500 kcal/kg, crude protein 21-23%, amino acids, vitamins and minerals, palatability and high digestibility.

For these reasons, we propose a plan for the rationalization of piglets intended for fattening, for the first two pre- and post-weaning phases for professional farms that for certain economic reasons do not wean the piglets at the age of less than one month.

Table 1.

Ration plan for piglet feeding

Age	Weight (kg)	Food (g/day)	Energy (kcal ED/day)
Age I			
21 days	5.5	85	300
28 days	6.0	180	630
Age II	10	500	1750
	20	1050	3600
	25	1200	4200

Source: own data

For fattening swine on professional farms we recommend for in the two phases of fattening:

- feed grower between 30-60 kg;
- feed finisher between 61 kg up to standard delivery of 101-105.

In the case of small professional farms that have agricultural land and can produce some of their grain, we present some feed formulas for pigs on their holdings.

Table 2.

Feed recipes for small business farms

Specification	Formula 1		Formula 2		Formula 3	
	kg	%	Kg	%	Kg	%
Wheat	75	75	50.00	55.4	49.85	50.2
Maize	-	-	18.70	18.8	18.70	18.9
Soybean meal	22	22	22.58	22.8	17.58	17.7
green peas	-	-	-	-	10.15	10.2
Premix	3	3	3	3	3	3
TOTAL	100	100	99.28	100	99.28	100

Source: own data

The distribution of these feed formulas in swine feed can be done in the form of dry combined feed or in wet form 1 liter of water per 1 kg of mixture, with the condition that the farm to have such technology. By administering these proposed formulas on small and even medium-sized farms for raising and fattening swine, the estimated amount to be consumed by a fat pig from 25 to 100 kg is 230 kg. Accepting this consumption, it returns for a fattening period of 15-16 weeks an average daily consumption of 1.78 kg and a specific consumption of 3.28 kg to obtain one kilogram of weight gain. Continuing with the subheadings and anticipating that at weaning a piglet must consume 0.5 kg of combined fodder/day and at slaughter 3.1 kg of combined fodder/day, a monthly progression of combined fodder of 0.5 kg/head returns.

CONCLUSIONS

The establishment of the most efficient fattening plan for fattened pigs farmed on professional farms must take into account the production of forecasted meat, the financial possibilities of the farm, the fattening system implemented. Regardless of the production system chosen by professional fattening farms, we conclude that young pigs should be fed at discretion with balanced feed because they make large deposits of muscle mass at the expense of fat deposits, with higher feed conversion rates. Fat pigs weighing 60 kg should be fed on a regular basis to achieve good feed conversion rates and lower fat deposits. In order to improve the fattening management, it is recommended for young pigs to be feed with granulated fodder at the introduction to fattening, because they have concentrated in a small volume, a large amount of nutrients that stimulate the growth rate under microclimate controlled conditions. Discretionary feeding of the youth ensures the achievement of large increases and behavior of bliss, rest and lack of agitation, if a proper feeding front and sufficient quantities of feed are ensured.

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