

Effect of Feed Quality on the Shape and Weight of Silkworms Reared in the Southern Climatic Conditions of Our Republic

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Annotation:

Feed is of great importance in realizing the properties of high productivity inherent in the heredity of farm animals. By providing pets with a variety of nutrients, it is easier to meet their needs for proteins, carbohydrates, vitamins and other substances.

Due to the fact that silkworms feed only on mulberry leaves, it is very difficult to satisfy all their biological and physiological needs for food. Because in regions and districts there are different types of mulberries, the level of agrotechnical care, methods of using mulberries, and this factor does not affect the biochemical composition and productivity of the leaves.

Product quality refers to a set of properties that determine its suitability. Product characteristics are obtained as a preliminary description of product quality. Product characteristics are the characteristics that arise during production, operation and consumption. Each product has several features. One product can be distinguished from another through these features. Including, based on the indicators of the first quarter of this year, thanks to the innovative solutions, storage and pre-processing equipment brought to a single silk industry network based on foreign experience, our silk farmers achieved a yield of 60-68 kg of silk per box, and with this, the general plan 2.3 times as much done, exports worth 9.6 million dollars. Obtaining a high-quality product in sericulture mainly depends on the type of silkworm, proper care of the worm, processing the cocoon without damaging its natural properties.

The silkworm belongs to the group of arthropods of the animal world, it is characteristic for arthropods to create a protective shell from the external environment. This is how silkworms make

their cocoons. But not all types of silkworm cocoons are important for industry. In the textile industry, only the cocoons of the mulberry silkworm are used, because the cocoons of other silkworms are unstable or unstable in shape and inconvenient to handle. The production of high-quality cocoon raw material is a complex process, and the silkworm egg goes through four stages. The silkworm feeds on mulberry leaves only during the larval stage, the period of feeding is very important, because in the later stages, the silkworm develops with nutrients collected in its body (Table 1).

Table 1.A box (19 g) of worm digestion of the eaten leaf

The age of the worm	Weight of eaten leaf, kg	Turned into dung, kg		Digested by the worm	
		kg	%	kg	%
I-IV	105-111	63,5-67	42-43	60-61	38-41
V	580-600	287-300	48-50	298-300	49-51
Total	685-711	350,5-367	108-111	340-343	87-92

In the care of silkworms, it is effective to feed them with leaves of special varieties of mulberry, because the quality of the feed affects the shape and weight of the cocoons. The worm develops very quickly, and its weight increases 10-12 thousand times from the time it emerges from the seed until it reaches the stalk and wraps the cocoon. A mature caterpillar stops eating leaves and turns into a caterpillar and then a butterfly within 2-3 days. It is known that breeds and hybrids with high productivity reduce their productivity and other good characteristics in the absence of nutrients. No food ration has been developed for silkworms in cocooning. Only the amount of leaf provided for one box of worms is determined.

But in the conditions of production, that is, in the process of feeding worms in the houses of farms, these norms are not paid attention to. In many cases, it is observed that there is a shortage of leaves, which negatively affects the yield and quality of cocoons. The effect of lack of nutrition on the origin of defective cocoons and the increase of its quantitative indicators has not been fully studied.

Special experiments on the importance of the amount of food in determining the causes of defective cocoons from cocoons wrapped by mulberry silkworm reveal the most important aspects of this problem (Table 2).

Table 2. Effects of substandard feeding of silkworms on larval viability and proportion of defective cocoons

Options	The amount of food given to the worm in the 1st box, kg	Lengthening of the worm season, day	Worm viability, %	1-box cocoon product from worm, kg	Including		Pd
					Percentage of fertile cocoons, %	X±Sx Amount of unripened cocoons, %	
1 Comparator	1000	24-26	93	71	89±1	11	-
2	500	30-33	64	40	72±1	28	0.995
2- in relation to the option, %		78	144	184,5	123,5	39,5	-

19-23% (up to 27-30 % in some districts) of the cocoons grown on farms and delivered to cocoons are defective cocoons. This indicator is equal to ¼ of the cocoons produced in the republic, and it

does not meet not only the world market, but also domestic requirements. Among the cocoons handed over to cocoons, the following are mainly: double cocoons 3.4-3.6%, satin cocoons 3.1 %, thin shell cocoons 3.8-4.0 %, spotted cocoons 4.7-5.1 %, 5.3-5.6 % more deaf cocoons and 4.1-4.6 % of other defective cocoons (total 28.7-30.8) were found.

Currently, our scientists are working on the problems of improving the quality of cocoon raw materials and raw natural silk by renewing mulberry silkworm seeds, improving the technology of cocooning waste processing, finding the most convenient methods of preliminary processing of cocoon, growing new types of fabrics and sewing products, natural are conducting scientific research on the problems of inventing new structures of threads from silk and mixed fibers.

Feed is of great importance in the realization of the high productivity characteristics embodied in the heredity of agricultural animals. Due to the provision of various nutrients to domestic animals, it is easier to meet their needs for protein, carbohydrates, vitamins and other substances.

Due to the fact that silkworms feed only on mulberry leaves, it is very difficult to meet all their biological and physiological requirements for food. Because there are different types of mulberry trees in regions and regions, the level of agrotechnical care, the methods of using mulberry trees, and this factor does not affect the biochemical composition and productivity of leaves.

Currently, new hybrids of silkworms are being bred in the farms of our republic. For this new and high-yielding breed and hybrids, the amount of leaves that can be used for one box (19 g) of worms is set at 1000 kilograms according to the rules of agrotechnics. However, in the conditions of production, i.e. in the conditions of feeding silkworms in the households of villagers, these standards are not taken into account, in many cases there is a shortage of leaves, which has a negative effect on the harvest. First of all, it is important to determine whether this condition affects the growth, development and body parameters of worms. Therefore, it was studied how the amount of food affects the body parameters of the worm. The experiments consisted of 6 options, the worms in the first and third option were provided with leaves completely (100%), that is, at the rate of 1000 kg per box, the worms in the second and fourth option were provided with 75% of the norm (750), the worms of the third and sixth options were given 50% of the norm (500 kg) of leaves. The information obtained on the basis of research is presented in Table 3 below.

Table 3. The effect of the amount of food on the body parameters of the worm

Options	Amount of feed given to worms, %	Body indicators of worms					
		Weight, mg			Size, sm ³		
		When hatched from an egg	Before wrapping the cocoon	How many times have they grown up?	When hatched from an egg	Before wrapping the cocoon	How many times it has grown
Ipakchi-1 breed							
V1	100	0,41	4500	10976	0,007	4,30	6143
V2	75	0,41	4010	9780	0,007	4,02	5743
V3	50	0,41	3690	9000	0,007	3,70	5286
Ipakchi-2 breed							
V4	100	0,42	4600	10952	0,007	4,35	6214
V5	75	0,42	4140	9857	0,007	4,05	5785
V6	50	0,42	3790	9024	0,007	3,75	5357

The numbers presented in Table 3 show that the body parameters of silkworms are directly related to the amount of food they are given. For example, when worms are fed normally, the weight of one larva before pupation is 4500-4600 milligrams, when the amount of food is reduced to 75%, this indicator is 4010-4140 mg, when the amount of food is reduced to 50%, it is 3690-3790 equal to milligrams, it was observed that it was 810 milligrams less compared to the weight of worms fed in the norm. In other words, as a result of the lack of food, the weight of worms decreases by 18-20 % and becomes slightly dehydrated. Therefore, the weight of normally fed worms increased by 10952-10976 times compared to hatched worms, and when given in the amount of 50 % of the feed rate, this indicator increased by 9000-9024 times, compared to those fed normally. we can see that it grew less than 1932-1976.

Giving food less than the norm caused not only a decrease in the weight of the worms, but also a decrease in its size. When worms are fed with full blood, the volume of the body before cocooning is equal to 4.30-4.35 sm^3 , and when given in the amount of 75 % of the feed rate, this indicator is 4.02-4.05 sm^3 . When it is reduced by %, it is found to be 3.70-3.75 sm^3 , which is 8.0-8.5 % smaller than the volume of normally fed worms. We can find out the correctness of our opinion by how many times the size of the worms has increased. In particular, the size of worms fed normally increased by 6143-6214 times compared to the size of hatched worms, while this indicator was equal to 5286-5357 times in worms fed with 50 % of the norm, 857 times compared to the previous one, otherwise in other words, it was proved that 16.2 % was less enlarged.

All this is due to the fact that at the end of the silkworm's life, the body's activity is focused on accumulating a lot of silk material necessary for cocooning, and the huge increase in the size of the silk separating compartment is due to the abundance of protein compounds in the silkworm's body during the cocooning process. indicates the possibility of silk production.

It requires the use of heat in many branches of agriculture. At all stages of the growth and development of the silkworm, it is necessary to create certain temperature conditions. requires a lot of heat.

N.A. Akhmedov (1992, 1999) is the author of the most extensive research on the effect of temperature on mulberry silkworm eggs. The author puts forward the opinion that preparation of mulberry silkworm eggs, suspension of embryonic development of eggs during incubation at low temperature are processes related to temperature, and a deep study of interaction of silkworm with temperature factor allows to control its development.

The research conducted on the effect of temporary suspension of embryo development during the incubation of industrial eggs on the amount of revival and viability of the worm is of scientific and practical importance. The author says that when the development of the embryo is stopped for 10-15 days at a temperature of +2+40C during the incubation of eggs, the survival of worms (compared to normal resuscitation) decreases by 3-4%, and the viability decreases by 3.5-9.0%.

Some years, the frosts in Koklam delay the formation of leaves in the mulberry tree, and when the worm comes to life from the egg, the mulberry leaf does not have time to write, or the written leaf is hit by cold. In such cases, it is necessary to temporarily stop the development of the embryo in order to delay the emergence of the worm from the egg. This process is even more important in fertile eggs. S.T. Valiyev (2011) studied this issue in depth and found that the hatching of hatched eggs at a low (+2+40C) temperature for up to 25 days when mulberry leaves were hit by cold did not adversely affect the viability of the eggs, cocoon productivity and 4.5-5.0% reduction in yield prevented discarding of reviving worms and created a method to hold reviving worms until new leaves are formed on mulberry trees.

Silkworms are mainly raised on farms. Wormkeepers have different experiences, and most of them allow sudden changes in the temperature in the room when keeping worms, the temperature is lower

(20-210 C) or higher (28-290 C) than the norm (25-260 C). they ate. Such drastic changes will definitely have a negative impact on the development of silkworms. Therefore, we focused the next direction of our research on the influence of changes in the temperature in the silkworm house from the norm on the parameters of the silkworm's body and silk gland. Because the further activity of the silkworm depends on this process. The influence of the change of the temperature in the worm house on the parameters of the worm body is presented in Table 4.

Table 4. The effect of air temperature changes in the worm house on the body parameters of the worm

Options	Qurtxonadagi havoharorati, °S	Body indicators of worms					
		Weight, mg			Size, sm ³		
		Live from the egg in ganda	Before wrapping the cocoon	How many times it has grown	Live from the egg in ganda	Before wrapping the cocoon	How many times it has grown
Ipakchi-1 breed							
V1	25-26	0,41	4500	10976	0,007	4,30	6143
V2	20-21	0,41	4205	10256	0,007	4,15	5929
V3	28-29	0,41	4020	9805	0,007	4,00	5714
Ipakchi-2 breed							
V4	25-26	0,42	4600	10952	0,007	4,35	6214
V5	20-21	0,42	4280	10439	0,007	4,18	5971
V6	28-29	0,42	4090	9976	0,007	4,05	5786

Therefore, the data in Table 11 confirm our above opinion that the growth and development of the silkworm depends on the air temperature in the worm house, and its lower or higher temperature has a negative effect on the body parameters of the worm. it became known to show. If the temperature in the worm house is moderate, the worms develop well and before cocooning, their weight is 4500-4600 milligrams, and their volume is 4.30-4.35 sm³. when low, these indicators are 4205-4280 mg, the volume is equal to 4.15-4.18 sm³, the weight is 10256-10439 times, the volume is 5929-5971 times larger. As a result, we see that the weight of the worm decreased by 295-320 mg, the size decreased by 0.15-0.17 sm³, and the growth of the body increased by 537-696 times less.

When the temperature in the worm house is higher than the norm, the body weight of the worms without developing normally is 480-510 milligrams, the volume is 0.30 sm³ less than the weight of the worms developed at a moderate temperature, and the body weight and it was found that the increase is 976-1171 times, and the size is 428-429 times smaller.

In the spring worm feeding period, lower or higher than normal air temperature in the worm house can affect other important biological indicators of silkworm as a result of negatively affecting the uniform development of worms.

Used literature

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