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## EXPERTISE ON THE FEATHER PLUCKING OF LIVE GEESE

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### Abstract

The goose feather is such a renewable raw material resource, which exceeds other textile filling materials in many properties. Using the feather and down goes back high in the past. Harvesting feather from live geese is based on moulting, which is a genetically fixed feather change and feathering process. With selection works and proper keeping systems the man developed a new domestic animal property, the increased feather producing ability. The correct feather collecting in the right time doesn't distress the geese, doesn't have any detrimental effect on their state of health, and doesn't have any adverse influence on their welfare.

**Keywords:** goose feather, feather collecting, state of health, welfare

### Szakvélemény az élő ludak tépéséről

#### Összefoglalás

A lúdtoll olyan megújuló nyersanyagforrás, amely több tulajdonságban felülmúlja az egyéb textilipari töltőanyagokat. A toll és pehely használata hosszú történeti múltra tekint vissza. Az élő ludakról való tollszedés a ludak genetikailag rögzült tollasodási és tollváltási folyamatára, a vedlésre alapozódik. Az ember szelekciós munkájával és megfelelő tartástechnológiával a ludaknál új háziállat-tulajdonságot, a fokozott tolltermelő képességet fejlesztett ki. Ebből adódóan a megfelelő időben és módon végzett tollszedés nem károsítja a ludakat, nincs hátrányos hatással azok egészségi állapotára, komfortérzetüket megengedhetetlen módon nem befolyásolja.

**Kulcsszavak:** lúdtoll, tollszedés, egészségi állapot, komfortérzet



## **Importance of the geese feather**

The geese feather is a high value renewable animal product, it is the best filling material and its quality cannot be surpassed till now (*Schneider, 1991*). It arises from the fact, that the geese feather is an excellent heat insulator with special structure and down content (*Schneider, 1995*), it has an ideal heat accumulator and exothermal characteristic (*Schneider, 1991*). It is more hygroscopic, than the plastics (*Pingel, 2004*), therefore it absorbs the humidity arising by the cutaneous respiration and passes it down successively later on (*Luttitz, 1991*), besides it is extreme elastic and its mass weight is very low. Owing to these facts the feather – by using of a minimal quantity – is particularly suitable for filling bedclothes (pillows, eiderdown quilts) and external clothes. The geese feather and down is generally a by-product of the animal slaughtering, but through special procedure it can be obtained from live animals, as well (*Schneider, 1991*). During the slaughtering procedure the feather and down is exposed to different heat and mechanical effects, this is why on the one hand the quality of the mechanically plucked feathers is lower than the hand plucked feather's one, deriving from the live animals (*Kozák, 1999a*), on the other hand there is necessary to complete different expensive procedures for the recovering of the original parameters of the plucking feathers. Since the live geese deliver a very high value feather and down, this way of feather utilization plays an important role in the geese breeding for a long time (*Schneider, 1991*). The wing covert and the down production give additional income to the animal breeders (*Pingel, 1990*).

## **Historical background**

The humanity utilized the bird feathers in the pre-historical age, too (*Ménesi et al., 1964*). However, the regular utilization of the poultry feather had been started only after the domestication, by the fabrication of feather filled bed clothes (*Ménesi et al., 1964*). The manufacturing of the feathers into the bed clothes are developed after Celtic-Germanic tradition, what was taken over by the Romans, as well (*Mártha, 1968*). Therefore the utilization of the wing covert and down for bed clothes manufacturing goes back to the 2000 years tradition (*Pingel, 2004*). Already in the first century A.D. you can read in the agricultural literature about the fact, that the geese supply the goose breeders two times per year with feathers. A Hungarian publication from 1830 mentions already 3 times extraction per year (*Mártha, 1968*).



Former the regular goose plucking was carried on mainly in the countries with big goose breeder's tradition, like Czechoslovakia, Hungary, Poland (*Schneider, 1991*), Romania, Soviet Union, Ukraine, France and China. In China, in the biggest feather trader country in the world, the feather plucking has been started much later, only in 1905, deviated from the European practice (*Kozák and Monostori, 1992a*). The feather plucking is used nowadays in Cuba, as well (*Valdivié, 2004*). The feather plucking has a long historical past and its geographical incidence is very important, as well.

### **The biological basis of the plucking**

The feather plucking is a using method of one goose product, which is the removal of the anyway moulting feathers from the body of the geese during the natural feather changing (*Szentirmay, 1968*). The feather obtaining from live geese is a traditional, natural and biologically proved procedure, which serves the obtaining of the raw feathers. The feather plucking from the live geese by hand is based on the genetically proved feather growing and feather changing procedure. The feather plucking is processed every time during the natural feather changing, it means during the moulting period, when the feathers are completely mature, and within a short period they separate automatically from the body of the geese (*Schneider, 1991*). During the moulting the geese remove their feathers and the new feathers appear (*Kiss, 1976*). Namely the bird feathers will become dead formation within a certain period after the development, therefore they will be slowly used up, and within regular periods falling out and the new feathers are growing instead of them (*Széky, 1973*).

The moulting is a complicated biological procedure, the main regulator is the endocrine glands system. A moulting will be started by the increased tiroxin hormone production of the thyroid gland. Under its influence the blood supply of the feather papillates (the feather verrucas) – from which the feathers are developed (*Széky, 1973*) – will be stopped, the naked bottom part of the feather, the feather bobbin will be dehydrated and the feather is falling out. It means the reddish marrow substance of the feather verruca became more bright and dry, after that the supply of blood has been stopped and at the end of the feather, at the verruca's omphalic hole (*Kiss, 1976*) starts a significant hornification procedure. By this way the contact between the bobbin and the feather papillate (-verruca) completely breaks off and the feather has grown ripe (*Fig. 1*). At the same time the cellular proliferation pressure, signalling the growing of the new feather, will throw out the old feather.



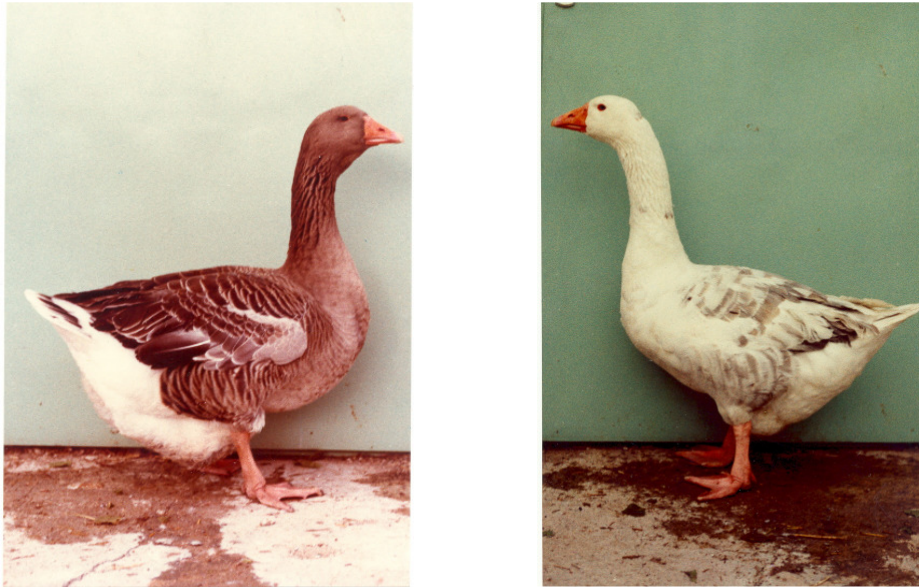
During the moulting period the nutriment supply of the old feathers will be stopped, they are situated loosely in their capsules, so the ripe feathers can be removed free from pain and skin injury (*Schneider, 1995*). The extraction will be facilitated by the fact, that the poultry skin is less sensible than the mammalian one (*Schwarze and Schröder, 1979*).



**Figure 1: Below the ripe feather developing new feather throws out the old feather, the nutriment supply shall be stopped, and the feather is necrotizing and falling out**

Source: J. Sutta: Kozák, 1999a

The feathers of satisfactory fed spring geese are completely developed to 8-10 weeks age, the feathers of the autumn geese a little bit later, to 11 weeks (*Kozák and Monostori, 1992b*). By breeding geese the moulting begins after the finishing of the egg production. Further moulting at the fattening geese occurs during the rearing period, at the stock geese outside of the laying period by 6-7 weeks, there is about 44 days necessary for the full maturity of the feathers (*Schneider, 1995*). The exact date will be determined every time by the actual condition of the geese stock (*Kozák, 1999a*). At the ripening of the feathers, as signal of the moulting start a huge quantity of fallen feathers appears on the surface of the animal breeding area (stage, run way, pasture) (*Kozák and Monostori, 1992b*). The moulting intensity and the moulting period is quite different, depending on the external circumstances. There is an extreme difference between the moulting of the domestic and the wild geese (*Kozák and Monostori, 1992b*) (*Picture 1-2*).



**Picture 1-2: Babat Grey Landes Breed and Babat Liverhybrid (Gander)**

This arises from the fact, that at the since 6.000 years domesticated geese, respectively at the since 4.000 years domesticated gnarled geese, as a result of the human selection work and other external conditions and by the since 2000 year executed regular extraction (2-3 times per year), by the managed rearing, by the conforming breeding technology, by the selection – and because of the more frequent moulting of the geese – new domestic animal characteristic is developed: the increased ability of feather production (*Kozák and Monostori, 1992b*).

During the plucking the feathers are only partially removed and only from certain parts of the geese body (*Kozák, 1999a*). The professionally executed plucking has no damaging influence on the geese egg production and on the egg fertility (*Schneider, 1995*). It is proved, that – as result of many years selection work – the one-day geese production has increased from year to year, and at the same time the geese were plucked 3 times in the rearing period and the adult period, as well (*Kozák and Monostori, 1992b*). The experimental results proved, that the plucking executed in time and in suitable manner has no damaging effect on the geese, there is no damaging effect on their health status and the biological parameters present no significant change on result of the plucking. The stress investigations of the geese during the feather obtaining (the measuring of the glucose level of the blood and of the cholesterol level of the blood plasma) have been proved, that in satisfactory rearing conditions and by choosing the correct time of the plucking, the feather plucking presents not a significant stress, which have no intolerable influence on the health status or the comfort feeling of the geese (*Janan et al., 2003*).



The plucking has no negative influence on the geese body weight and the gain in weight (*Janan et al.*, 2001). The plucking presents a certain advantage on the carcass quality (*Schneider*, 1995). The reason is on one hand, that the appetite of the animals are growing after the plucking and the body weight increases, on the other hand the geese skin becomes more elastic, this is why at the mechanically plucking after the slaughtering the incidence of the skin injury decrease (*Schneider*, 1991).

## The actual situation

The animal protection organisations in Western Europe become more and more stronger, particularly after the transmission “Kassensturz” of the Swiss Television DRS on 15<sup>th</sup> October, 1991 and they protest against the plucking of live animals more and more powerful (*Kozák*, 1999ab).

The animal protection requirements of the European Union on waterfowl prescribe as well, that “the feather, including down plucking from live animals is prohibited” (*Council of Europe* 1999ab: Article 23/3; *Council of Europe* 1999c: Article 22/4). To our great regret these extremist movements and the European animal welfare recommendation does not take into consideration neither the many thousand years tradition, nor those developed characteristics of the geese during the 6000 years domestication past, which allow the feather plucking from the live geese.

The Hungarian Animal Protection Act does not prohibit “the home made or by licensed technology completed plucking of the ripe feathers” (1998: XXVIII.tv.6.§./2/). The time and the manner of the feather plucking from live animals, the treatment with geese (accommodation, rearing, feeding, stress free work executing etc.) are detailed regulated by the Government Regulation linked with the Animal Protection and Consideration Act (332/1999./III.31./FVM r.). The legislation prescriptions take into consideration in great extent the biological characteristics of the geese, the biological changing of feathers and the economic-social aspects, as well (*A Magyar Köztársaság Kormánya*, 1997).

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