



3ο Πανελλήνιο Συνέδριο Τεχνολογίας Ζωικής Παραγωγής – 3rd Pan-Hellenic Congress in Technology of Animal Production

4 Φεβρουαρίου 2011, Θεσσαλονίκη, Ελλάδα –
4 February 2011, Thessaloniki, Greece

Διοργάνωση – Organized by:

ΑΛΕΞΑΝΔΡΕΙΟ ΤΕΧΝΟΛΟΓΙΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΙΔΡΥΜΑ ΘΕΣΣΑΛΟΝΙΚΗΣ –
ALEXANDER TECHNOLOGICAL EDUCATIONAL INSTITUTE OF THESSALONIKI

ΣΧΟΛΗ ΤΕΧΝΟΛΟΓΙΑΣ ΓΕΩΠΟΝΙΑΣ –
SCHOOL OF AGRICULTURAL TECHNOLOGY

ΤΜΗΜΑ ΖΩΙΚΗΣ ΠΑΡΑΓΩΓΗΣ –
DEPARTMENT OF ANIMAL PRODUCTION

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Τόμος Πρακτικών – Proceedings

Οι χρησιμότητες του όνου: τεχνικές και προοπτικές – The utilities of donkey: techniques and prospects

Δ. Καρατοσίδη ^{1,*}, G. Marsico ¹, F. Pinto ¹, A. Vicenti ¹, S. Tarricone ¹ –
D. Karatosidi ^{1,*}, G. Marsico ¹, F. Pinto ¹, A. Vicenti ¹, S. Tarricone ¹

¹ *Department of Animal Production, University of Bari, 70126 Bari, Italy*

* Αλληλογραφία. Τηλ.: +39 080 5442826, Φαξ: +39 080 5442822. – Corresponding author. Tel.: +39 080 5442826; Fax: +39 080 5442822.

Διεύθυνση e-mail: despinakaratosidi@yahoo.com (Δ. Καρατοσίδη). – E-mail address: despinakaratosidi@yahoo.com (D. Karatosidi).

Περίληψη

Στις αρχές τις δεκαετίας του '90 υπήρχαν αναφορές ότι ο οικόσιτος όνος κινδύνευε από εξαφάνιση. Στην Ιταλία, πολλές φυλές όνων είχαν αποδεκατιστεί και κάποιες από αυτές δεν υπήρχαν πια. Με τον όνο να απειλείται, υπήρχε ο φόβος κατάρρευσης ενός μέρους του οικοσυστήματος που ζούμε, ειδικότερα η βιοποικιλότητα λόγω του ρόλου της στην ανθρώπινη ιστορία. Σε όλες τις χώρες που βρέχονται από τη μεσόγειο θάλασσα, όπως είναι οι χώρες της νότιας Ευρώπης από την Ισπανία μέχρι την Ελλάδα και εκείνες της βόρειας Αφρικής από την Τουρκία μέχρι το Μαρόκο, η παρουσία των ιπποειδών έχει συμβάλει στην ανάπτυξη του αγροτικού κόσμου. Στις μέρες μας, σε πολλά μέρη της Ιταλίας ανακαλύπτονται ξανά οι δυνατότητες που ακόμα έχει ο όνος. Για άλλη μια φορά η παρουσία του όνου γίνεται χρησιμη στα αγροκτήματα, πρώτα απ' όλα για την παραγωγή γάλακτος, η σύσταση του οποίου πλησιάζει πολύ το ανθρώπινο μητρικό γάλα, και κατόπιν για τη χρήση του στη βιομηχανία καλλυντικών. Επίσης, η κατανάλωση του παραγόμενου κρέατος αυτών των ζώων εκτιμάται ιδιαίτερα από τους σημερινούς καταναλωτές που είναι σε διαρκή αναζήτηση αυθεντικών γεύσεων και παραδοσιακών συνταγών και, τέλος, η χρήση του όνου για θεραπευτικούς λόγους και πεζοπορία. Αυτή η εργασία είναι μια απλή περιγραφή της ιταλικής παραγωγικής πραγματικότητας με πολλές πιθανές προτάσεις για τις χώρες, όπου ο όνος εξακολουθεί να αποτελεί ένα μοναχικό κάτοικο της υπαίθρου.

Λέξεις κλειδιά: Όνος, Κρέας, Γάλα, Ονοθεραπεία

Abstract

In the early 90's, there were reports that donkeys are about to extinct as species. In Italy, there were counted few heads of many breeds and some of them had already been extinct.

With the donkey in extinction, there was a risk of disappearance of a part of ecosystem that we are part of, a biodiversity particularly significant as it represents human history. All countries around the Mediterranean sea, countries of southern Europe from Spain to Greece and of north Africa from Turkey to Morocco, have seen the production and the progress of agricultural world related to the presence of equines. Today, in many parts of Italy, donkey is rediscovered for the potentiality that can still has. The presence of donkey becomes once again useful inside farms, first of all, because of its milk production, milk that is similar to that of humans and, also, for the use of this milk in the industry of cosmetics. Moreover, the use of meat produced by these animals is appreciated by today's consumers in the quest for authentic flavors and traditional recipes and, last but not least, the donkey's use for pet-therapy and for trekking with donkeys. This work is just a descriptive picture of the Italian breeding reality with many possible suggestions for those countries where the donkey is still a solitary inhabitant of the countryside.

Keywords: Donkey; Meat; Milk; Onotherapy

1. Introduction

After the second world war, in Italy and not only, agricultural production was concentrated mostly in valleys of rivers along the coasts and in all those areas where agricultural land was more fertile in order to achieve higher production. Moreover, there was a massive mechanization of farming operations and, generally, a major and/or minor infrastructure of these areas. This operation was induced by a transition from an agricultural economy based on auto-consumption up to a kind of business that was confronted with a market constantly more globalized, where consumers base their choices on the quality and the relation quality/price of the product. The shift of business activity of areas agronomically more advantageous (e.g. more fertile) led the farming population to abandon inlands and/or mountain and foothills, leading these areas to marginalization of their production and the urbanization of the population with all the environmental problems that it entails. The abandonment of inlands, mountains and foothills led the use of other areas for zootechnical and forestall purposes based on a balanced use of the territory. In this context can also be added the zootechnical activities like the breeding of autochthonous genotype animals such as equines (donkeys, horses and their hybrids).

Across Europe, as well as in the rest of the world, equines were always being used by man for labor purposes (e.g. shooting, saddle, packsaddle, etc.). Generally, they were living with their owners until the moment they were incapable of labor and then, old enough and usually malnourished, were slaughtered for their meat. Their meat is rich in connective tissues, with pure organoleptic and nutritional characteristics. Their meat appears to be a dark red color with yellow fat, rather scarce and with a characteristic smell and a sweetish taste. Nowadays, the situation is very different for equines and especially for donkeys, their number is reduced because of their uselessness in the economy of the agricultural farms; from a half million and more heads that existed in the 50's, there are counted only a few hundred in the late of 80's. In order to save them from extinction, first the researchers and then the farmers had to

identify uses for such animals in order to make them economically compatible inside their productive system. Consequently, in Italy some breeds of donkeys are being used in farms for trekking, for pet-therapy (onotherapy), for milk and meat production utilizing in such way their historical usefulness and docility.

In June 2006, in Italy was formed the National Consortium of Donkey breeders, which objectives of the project were:

- The direction, coordination, supervision and support of the “new activities” of the consortium (e.g. pet-therapy, onotourism, etc.).
- Promotion and protection of donkey’s milk.
- Promotion of donkey’s rearing system and protection of donkey breeds, maintenance of biodiversity and animal welfare.
- Monitoring activities at various levels of the production chain; livestock productions must be qualified for the authenticity, traceability and foods safety. The consortium will provide and improve products’ quality for the health of consumers (quality assurance), supporting the scientific research and technology.
- Organization of activities to support and promote the “rural development” which is focused on territorial vocations able to satisfy the new demands of the market.

2. Meat

The production of meat comes from the demand to use foals because not all donkeys can be used for farming, especially males that can be used for the meat production of high quality for a particular group of consumers.

The relationship between cardiovascular diseases and fat composition of food is probably one of the most popular consumer’s topic (Pinto et al., 2002). Quality control of fat and cholesterol in the diet is considered to be important for the prevention of obesity and hypercholesterolemia due to which is demonstrated a connection with some disorders of the cardiovascular system. It seems that there are also relations between a high consumption of animal fat and an increased risk of certain cancers, especially those of colon, breast and prostate (Reddy, 1995). Faced with such dangers, the European consumers are changing their feeding habits and are asking for more qualitative products. Consequently, there is growing the demand for safer foods. From this issue it should not be forgotten the meat industry which, right from the beginning of the new millennium, faced a negative repercussion of beef consumption and also because of several other public health associated crises like the Bovine Spongiform Encephalopathy (BSE). All the above reasons made the consumers to turn to alternative meats like those of equines (Pinto et al., 2002).

The consumption of horsemeat in Italy is already among the habits of a large part of consumers and according to Italian National Institute of Statistics (ISTAT) data in 2000 were slaughtered 268,745 heads of which the 56% only in south Italy. The annual average consumption per capita of horsemeat is estimated at 1.35 kg of a total meat consumption of 84.4 kg year/inhabitant (ISTAT, 2000). The donkey meat is very similar to that of horse. In Italy, the tradition of its consumption is particularly widespread in northern regions

like Veneto, Emilia Romagna, Piedmont but also in some southern regions like Apulia. In particular, in the valley of Padania, in the past years, the slaughter of old horses and donkeys helped inhabitants to add proteins at their daily meals that were mainly based on grains and vegetables. Donkey's meat was used for the production of sausages or for stews and braises. It is appreciated for its protein balance (21.7 g per 100 g of edible portion), for the iron and carbohydrates content, for the presence of proteins (higher than this found in beef), for the presence of low fat (2.7 g per 100 g of edible portion) of which the major part is unsaturated fatty acids (particularly the linoleic acid) and for the phosphorus and potassium content (Tables 1, 2 and 3). Moreover, meat controllers confirm that donkey's meat is better than this of horses because of its tenderness and sweetness. Typical characteristics of equines meat are its dark red color, due to the amount of myoglobin (and therefore iron) and its sweetness due to the high concentration of muscular glycogen and glucose. It is rather thin, firm and consistent, with yellow fat, light smell and is easily digestible. Parts with a major amount of connective tissues require a long cooking while the other part can be made roasted or grilled. There are many good examples of products like "bresaola" (typical sausage of Valtellina) that can be prepared also with horsemeat by using the same preparations, topped with cheese and served with salad. Another typical sausage is the donkey sausage, prepared with several spices, not very spicy and lightly aromatic so as to highlight the characteristic smell and taste of this meat.

Πίνακας 1 – Table 1

Χημική σύσταση του μυ *Longissimus dorsi* των σφάγιων όνου – Chemical composition of the *Longissimus dorsi* muscle of donkey carcasses

	Polidori et al. (2008)	Pinto et al. (2007)	Μέσος Όρος – Mean value
Υγρασία – Moisture (%)	73,7	71,83	72,76
Λίπος – Fat (%)	2,02	4,54	3,28
Πρωτεΐνες – Proteins (%)	22,8	21,8	22,3
Τέφρα – Ash (%)	1,01	0,99	1
Χοληστερόλη – Cholesterol (mg/100 g)	68,7	57,65	63,18

Πίνακας 2 – Table 2

Η σύσταση σε ανόργανα στοιχεία (mg/100 g) του μυ *Longissimus dorsi* των σφάγιων όνου – Mineral composition (mg/100 g) of the *Longissimus dorsi* muscle of donkey carcasses

	Ελάχιστο – Minimum	Ανώτερο – Maximum	Μέσος Όρος – Mean value
Ασβέστιο – Calcium	6,12	11,5	8,65
Μαγνήσιο – Magnesium	18,5	33,6	24,8
Κάλιο – Potassium	312,0	438,3	343,7
Φωσφόρος – Phosphorus	185,5	334,5	212,9
Νάτριο – Sodium	36,8	83,6	52,5
Ψευδάργυρος – Zinc	2,99	4,71	3,67
Σίδηρος – Iron	2,86	4,77	3,8

Πίνακας 3 – Table 3

Ακόρεστα λιπαρά οξέα (% επί του συνόλου) και ποιοτικοί δείκτες του ενδομυϊκού λίπους – Unsaturated fatty acid composition (% on total) and qualitative indexes of the intramuscular fat (Pinto et al., 2007)

Ακόρεστα λιπαρά οξέα – Unsaturated fatty acid composition	Μέσος Όρος – Mean value
UFA (%)	58,52
MUFA (%)	45,25
PUFA (%)	13,02
ω3 (%)	10,74
ω6 (%)	1,87
ω6/ω3	5,74
Unsaturated/saturated	1,41
Index of atherogenicity (AI)	0,81
Index of thrombogenicity (TI)	1,10
Saturated/polysaturated	3,19
PCL/PCE	1,03

3. Milk

It is written that Cleopatra, queen of ancient Egypt, used donkey's milk in order to preserve the beauty of her skin. It seems that also Poppea, second wife of Emperor Neron, did the same thing. Donkey's milk is still being used for the production of soaps and moisturizers and is much in demand by manufacturers of cosmetics. The father of medicine, Hippocrates, prescribed this milk for many diseases like liver disease, edemas, nose bleeding, poisoning, infectious diseases, healing of wounds and fevers. It was used until the early twenties as a substitute for woman's breast milk because of its chemical composition that is considered closer to that of humans and, therefore, is being used mostly for the feeding of children in the infant period, ensuring them a good growth and a normal mental and physical development.

As far as regards the qualitative aspects of the milk, it can be noted that there is a considerable variability, mainly due to lipid and proteic levels which can depend on genetic and environmental factors. From various studies conducted in Europe there have been identified certain characteristics: the average energy value is 1,732.9 kJ/kg and the non-proteic nitrogen is very close to that found in humans milk (Table 4). This is very important because it includes the fraction of milk's whey protein (β -globulin, α -lactalbumin, lysozyme and lactoferrin) in addition to leptin, urea, uric acid, creatine, amino acids, nucleotides and nucleic acids, that help the neonatal development because they represent all the specific components that are called biopeptides and hypo allergenic factors. Another important element in favor of donkey's milk is its high content of lactose which, together with the low amount of microbial load and the high content of lysozyme, make this milk ideal substance for the growth of lactic bacteria for nutraceutical and probiotic activities and, also, an excellent stimulator for the intestinal absorption of calcium, helping this way the bone mineralization in early human age. Another molecule present in donkey's milk, on which is paid special attention for its multifunctional activity on human's body, is the lactoferrin, a glycoprotein (peptone) of 80 kDa weight with two sites for iron-binding. Lactoferrin seems to be able to inhibit the development of adenocancers of colon as it reduces significantly the number and

size of cryptic outbreaks, considered as a precursor of this cancer and is present in donkey's milk. The lactoferrin can intervene in inflammatory processes and modify some components of the immune system through interactions with monocyte/ macrophage system and control the percentage of iron.

Πίνακας 4 – Table 4

Χημική σύνθεση και φυσικές ιδιότητες του γάλακτος γαϊδάρας, φοράδας, αγελάδας και γυναίκας – Chemical composition and physical proprieties of milk of donkey, mare, cow and woman (Anantakrishnan, 1941; Guo et al., 2007)

	Γαϊδάρα – Donkey	Φοράδα – Mare	Αγελάδα – Cow	Γυναίκα – Woman
pH	7,00-7,20	7,18	6,60-6,80	7,00-7,50
Πρωτεΐνες – Protein (g/100 g)	1,50-1,80	1,50-2,80	3,10-3,80	0,90-1,70
Καζεΐνη – Caseine (g/100 g)	0,64-1,03	0,94-1,20	2,46-2,80	0,32-0,42
Λίπος – Fat (g/100 g)	0,30-1,00	0,50-2,00	3,50-3,90	3,50-4,00
Λακτόζη – Lactose (g/100 g)	5,80-7,40	5,80-7,00	4,40-4,90	6,30-7,00
Τέφρα – Ash (g/100 g)	0,30-0,50	0,30-0,50	0,70-0,80	0,20-0,30
Πρωτεΐνες ορού – Whey proteins (g/100 g)	0,49-0,80	0,74-0,91	0,55-0,70	0,68-0,83

Due to the high content of polyunsaturated acids of donkey's milk, it has been suggested its use in a low- calorie diets and cholesterol- lowering drugs, whereas the high content of essential amino acids can be useful in the traditional diet of elderly people. Among the noteworthy aspects must be mentioned the possibility of using donkey's milk in cases of forms of intolerance or food allergies (Businco et al., 2000).

4. The onotherapy

Onos is the greek word for the donkey and *onotherapy* is the term for the “therapy” with the help of donkey. With the onotherapy can be valorized the physical and behavioral characteristics of the donkey (small in size, soft in touch, affectionate and patient, with slow movements). Due to these characteristics, donkey can offer valuable services at those people that are affected by disability or discomfort, with results that can be noticed quickly and can be documented.

The main activity of the “Mediation with the Donkey” is to recreate a relationship between man and animal. Nowadays, as a part of our culture, there is an ongoing attempt to reconcile man with the environment that he lives; reconciliation with the world, with the nature and particularly with animals. The rediscovery of the relationship between man-animal is a journey back in time so as to find back the harmonious relationship they had in the past. It is a practice that uses donkey riding as a therapeutical “tool” and has a form of a combination between education and rehabilitation techniques, aiming to achieve a success on a sensorial, motorial, affective or behavioral injury of man (Milonis, 2010).

The “tools” of onotherapy are: the donkey, the body, the movement, the game, the report donkey- user- operator, all the possible expressions of communication that allow the approximation to body size by restoring a connection with emotions and feelings. It is an active method that never allows the person to remain passive or to be isolated.

The donkey has an active role in the relationship with the man, able to change its emotional attitude. The treatment is the “cure” of the whole person by taking into consideration the different levels in which human nature is expressed. The intervention of aid becomes more and more an educational intervention and rehabilitation; habilitation and rehabilitation that look forward to uniqueness and authenticity. The activities of “Mediation with the Donkey”, in particular, are aiming at the pursuit of improved living conditions of the person from a psychological point of view, there are also activities that cover a therapeutical purpose as they affect on the general health of the person. Achieving a state of psychological well-being has also an effect on the general health of the individual. Positive moods affect dramatically behavior, the mental processes, the expression of emotions, the good feeling within us and with others. In this sense, the work done during the onotherapy, is aiming to achieve a higher state of well-being and it is the best foundation to allow therapeutical programs to act in the best way.

5. Conclusions

The donkey faces again a glory due to the diffusion of the culture for the protection of the environment, the rediscover of old traditions, the need of a contact always more direct with the nature, by producing new elements for the alternative medicine for the treatment and prevention of typical human diseases (depression, loneliness, etc.) of a deep technological and materialistic society. The last few years, donkey becomes again the principal “actor” of original and innovative processes with the idea to form an important area in the global zootechnical backstage.

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