

8th European Symposium on South American Camelids

4th European Meeting on Fibre Animals

# BOOK OF ABSTRACTS



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Free University of Bolzano

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VEREIN ZUR FÖRDERUNG DER FORSCHUNG  
IM GESUNDHEITSEKTOR VON  
LAMAS UND ALPAKAS e.V.



# Table of Contents

<b>Colour variants of swedish finewool sheep and Rya sheep</b> .....	1
Johansson, A. M.	
<b>Study of the FGF5 gene in the fleece length on camelids of the new world</b> .....	2
Melo C., Zapata C., Melo M.	
<b>Genetic diversity in alpaca <i>LALBA</i> promoter affects pGL3-luciferase expression</b> .....	3
Versace C., Mohammed A.A.S., Letaief N., Miretti S., Giambra I.J., Pauciullo A.	
<b>Evaluation of the hybridization and introgression between llamas and alpacas in Bolivian populations using “Y” chromosome and mitochondrial molecular markers</b> .....	4
Román Peña A., Barreta Pinto J., Iñiguez Rojas V.	
<b>Resuming wool: a strategy for active conservation of an Italian Merino-type sheep breed</b> .....	5
Temerario L., D’Onghia A., Landi V., Monaco D., Lacalandra G.M., D’Innocenzio F., Mangini G., De Palo P., Ciani E., Dell’Aquila M.E.	
<b>The Sopravissana sheep: three centuries of resilience, meat, fiber and far more</b> .....	6
Giampaoli G., Giacche L., Grande S., Giovannini S., Sarti F.M	
<b>The wool quality of Jezersko-Solčava and Improved Jezersko-Solčava sheep in Slovenia</b> .....	7
Simcic M., Bizjak M.	
<b>Improving a black alpaca breeding program using colourimeter values for male selection</b> .....	8
Cruz A., Gutiérrez, G., Yucra, A., Burgos, A., Wurzinger, M., Gutiérrez, J.P	
<b>Polymorphisms in <i>MC1R</i> and <i>ASIP</i> genes associated with color phenotypes in alpaca huacaya</b> ..	9
Pinares R., Cruz A., Daverio M.S., Di Rocco F., Ponce de León F.A., Wurzinger M., Gutiérrez G.A.	
<b>Genome sequencing of the four camelid species of the new world</b> .....	10
Melo C., Zapata C., Torre S., Mendoza I., Hachircana L.	
<b>Candidatus mycoplasma haemolamae - a first idea of prevalence in german llama and alpaca flocks</b> .....	11
Bartl E.M., Ulrich L., Wehrend A., Wagner H	
<b>Reproductive management of llama and alpaca flocks in Germany - results from a survey among animal owners</b> .....	12
Bartl E.M., Ulrich L., Wehrend A., Wagner H.	
<b>Effects of photoperiod on cashmere shedding synchronization and its mechanism in hanshan white cashmere goats</b> .....	13
Haizhou S., Shengli L.	
<b>Nutritional biology and energy expenditure in South American camelids</b> .....	14
Riek A.	
<b>Effect of dietary protein on postpartum reproductive performance in alpacas</b> .....	15
Van Saun R., Ancco E.Q., Gomez C.	
<b>Blood calcium-phosphorus product as a proxy for vitamin d status in camelids</b> .....	16

Van Saun R.	
<b>Effects of dietary supplementation with n-carbamylglutamate on maternal endometrium and fetal development during early pregnancy in inner Mongolia white cashmere goats.....</b>	<b>17</b>
Haizhou S., Chongzhi Z.	
<b>Effects of dietary phosphorus on puberty and reproductive performance in female alpacas.....</b>	<b>18</b>
Quispe, C.E., Ancco E., Van Saun R., Gomez C.A.	
<b>Interaction between vicuñas and sheeps in the Reserva Nacional Pampa Galeras , Peru.....</b>	<b>19</b>
Quispe D., Sánchez E, Quispe J., Machaca V.	
<b>Development of a novel device to determinate incidence medullation of white alpaca fiber .....</b>	<b>20</b>
Quispe B.M. Quispe B.C. Serrano A. L. Quispe P.E.	
<b>Development of a software based an artificial intelligence to determine density fiber on skin alpacas .....</b>	<b>21</b>
Quispe Peña, E., Quispe B.C., Ballón Benavente B., Quispe Bonilla, M.	
<b>Community-based vicuña (vicugna vicugna) fleece collection in the arid puna ofArgentina .....</b>	<b>22</b>
Sacchero, D., Quiro R.J.	
<b>Establishment of camel wool chain in Iran with the aim of improving the livelihood of camel owners.....</b>	<b>23</b>
Rafat S.A.	
<b>Drinking behavior in llamas (lama glama) offered fresh and saline water.....</b>	<b>24</b>
Enke N., Gerken M., Brinkmann L., Runa R.A., Tholen E., Südekum K.H.	
<b>Assessing animal welfare risk in fibre-producing animals applying the five domains framework .....</b>	<b>25</b>
Salobir K., Kirchner K. M.	
<b>Does the usual keeping of male South American camelids conform with the law of animal welfare? .....</b>	<b>26</b>
Gunsner I.	
<b>Stress in alpacas: physiological and behavioral responses during the shearing procedure .....</b>	<b>27</b>
Nöllenburg, N., Cruz A., Burgos, A., Gutiérrez, G., Wurzinger, M., Winckler, C.	
<b>Relationship between coat colour and temperature measurements along the alpaca fibre .....</b>	<b>28</b>
Yucra A., Burgos A., Gutiérrez G., Wurzinger M., Gutiérrez J. P., Cervantes I., Cruz A.	
<b>Set up wool collection centres in Europe for upgrading the value of fleeces .....</b>	<b>29</b>
Chaupin M.T.	
<b>Ways to improve the profitability of sheep farming with rare indigenous sheep breeds .....</b>	<b>30</b>
Ketterle M.	
<b>Can Alpacas and Vicuñas Save the Planet? .....</b>	<b>31</b>
Safely M.	
<b>Picotani Water Project.....</b>	<b>32</b>
Cantwell D.	

## Relationship between coat colour and temperature measurements along the alpaca fibre

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In the South American Andes alpacas are raised at an altitude between 3,500 and 5,000m. Alpaca is one of the few economically productive species under these conditions. They are characterized by a wide range of coat colors, which can be grouped into 9 basic colors: White (W), LFY, LFX, LFZ (Light Fawn Intensity X, Y, Z), Light Brown (LB), Dark Brown (DB), Dark Brown Black (DBB), Black (B) and Gray (G). The coat color can influence the thermoregulation of alpacas, since color has an important effect on the reflectance of solar radiation. Therefore, the present work aims to evaluate the effect of coat color on thermoregulation at noon in sunny days. From 18 animals (2 per coat color) over a period of 15 days a total of 540 temperature records were taken from the mid side on two points along the fiber: 1) medium point - MP of fiber length, and 2) fleece base – FB (contact with the skin). Temperature was taken with an infrared thermographic camera at a distance of 1m. All measurements were taken at the Pacamarca Research Station at an altitude of 4100m. The statistical model included the effect of coat color (9 levels) and fiber length and fiber diameter as covariates. The coat color temperatures in the MP were: 30.62, 31.11, 33.01, 31.14, 31.18, 31.73, 30.01, 33.01, 30.62 °C, and the temperatures in the FB were: 33.34, 33.31, 34.77, 33.81, 34.42, 33.78, 33.78, 35.64, 34.04 °C for W, LFX, LFY, LFZ, LB, DB, DBB, B and G respectively. A significant difference was found for FB among colors. The temperature in the MP is lower and more homogeneous compared to FB. Likewise, significant differences were found for both covariates fiber diameter and fiber length in the FB. It seems that the fiber diameter, fiber length and coat color play an important role in heat isolation in alpacas.