

FORMATION AND CHARACTERIZATION OF SLOVAK DAIRY COMPOSITE SHEEP BREED: description of the process

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Breeds of sheep raised in Slovakia

(actual state -23 breeds)

✦ Basic breeds (dual purpose, mainly dairy breeds)

- Improved Valachian and Original Valachian
 - Tsigai
 - Merinos*

✦ Specialized meat breeds

- Suffolk
- Ile de France
- Berrichon du Cher
- Oxford down
- Charollais
- Texel

✦ Specialized dairy breeds

- Lacaune
- East Friesian
- Assaf
- Slovak dairy sheep

✦ Prolific breed

- Romanov breed

✦ Dual purpose – mainly non-dairy breeds)

- Bergschaf
- German black headed
- Kent (Romney marsch)

✦ **Another minor breeds:** zwartbles, white alpine, clun forest, dorper, ouessant sheep

* Includes also Fleisch Merinos, Ascanian Merinos

Improved Valachian (IV – 40%) and Tsigai (Ts -30%) breeds



IV ram



Ts ram



IV ewe



Ts hogget

Original Valachian (Valaška) and Ascanian merino breeds

(foto Pavlík, Tomka)



AM ram



V rams



AM ewes



V ewes

Lacaune (LC) and East Friesian (EF) breeds



LC ram



LC ewes
before
lambling



EF rams

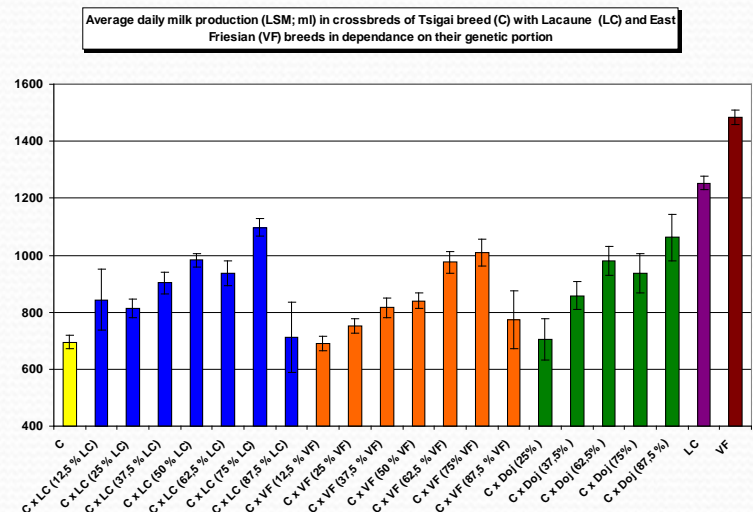
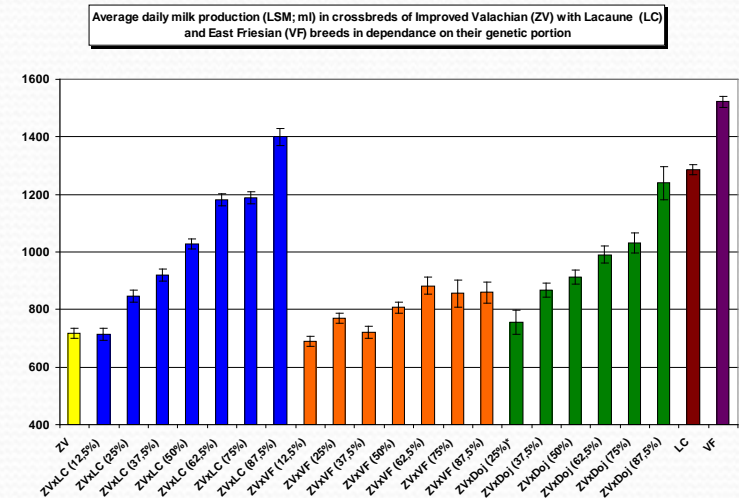
The process of creating a new composite breed

- In the beginning of 1990-ies, the programme of formation of synthetic population of Slovak Dairy sheep (SD) was launched .
- **Breeder's goals:** higher milk production, better reproduction and functional traits of dairy sheep.
- **Intention:** forming improved sheep population fitting to semi-extensive production system.



The establishment of new breed was divided into two periods:

- ❖ **first**, crosses of indigenous breeds (Improved Valachian, Tsigai and Merino) with improving breeds (Lacaune, East Friesian) of various proportion were formed;
 - ❖ evaluations of crossbreds with proportion of LC and EF ranged from 12.5 to 87.5 %
 - ❖ analyses of milk traits and litter size - economically most important traits
 - ❖ population with good shape udder, of appropriate cistern size and milkability was formed

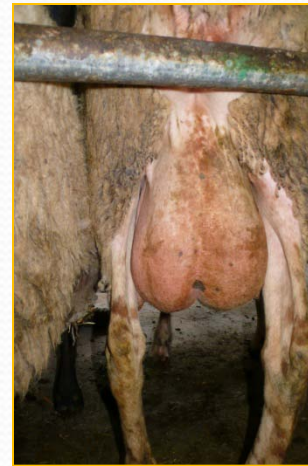


The process of creating a new composite breed



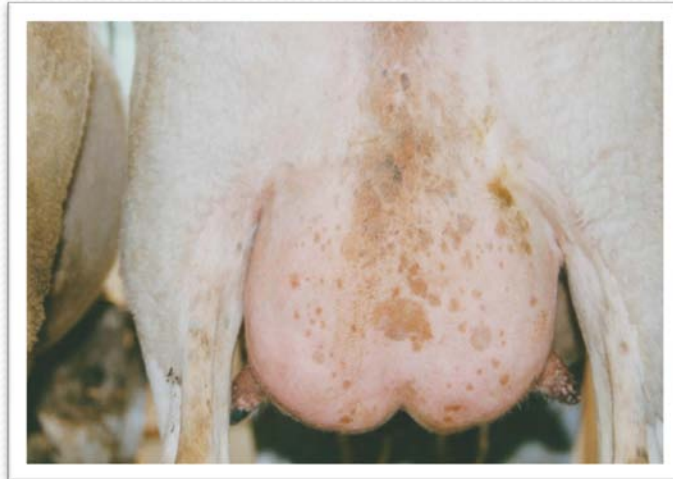
The establishment of new breed was divided into two periods:

- ❖ **second**, close (inter se) breeding scheme within the crossbred population has been applied - the aim was to stabilize composite population.
- ❖ Parents of the next generation were chosen on the basis of breeding values for milk yield and litter size.
- ❖ Analyses of udder morphology and milkability traits - goal was to form population of ewes that fit machine milking.
- ❖ Good udder morphology, appropriate cistern size and of minimal mastitis occurrence.



Statistical evaluation (2016)

- ✚ The mixed models (SAS 9.2) with fixed and random effects were used for statistical analyses.
- Milk traits analyses included 20.511 milk records belonging to 11.026 ewes kept in 52 flocks during the period between 1995 and 2015.
- Reproduction traits analyses included 30.034 litter size records belonging to 9.671 ewes kept in 26 flocks during the period between 1997 and 2015.



Results achieved by breeding process

During period of last 21 years (from 1995 to 2015)



Ewe lambs



Yearlings

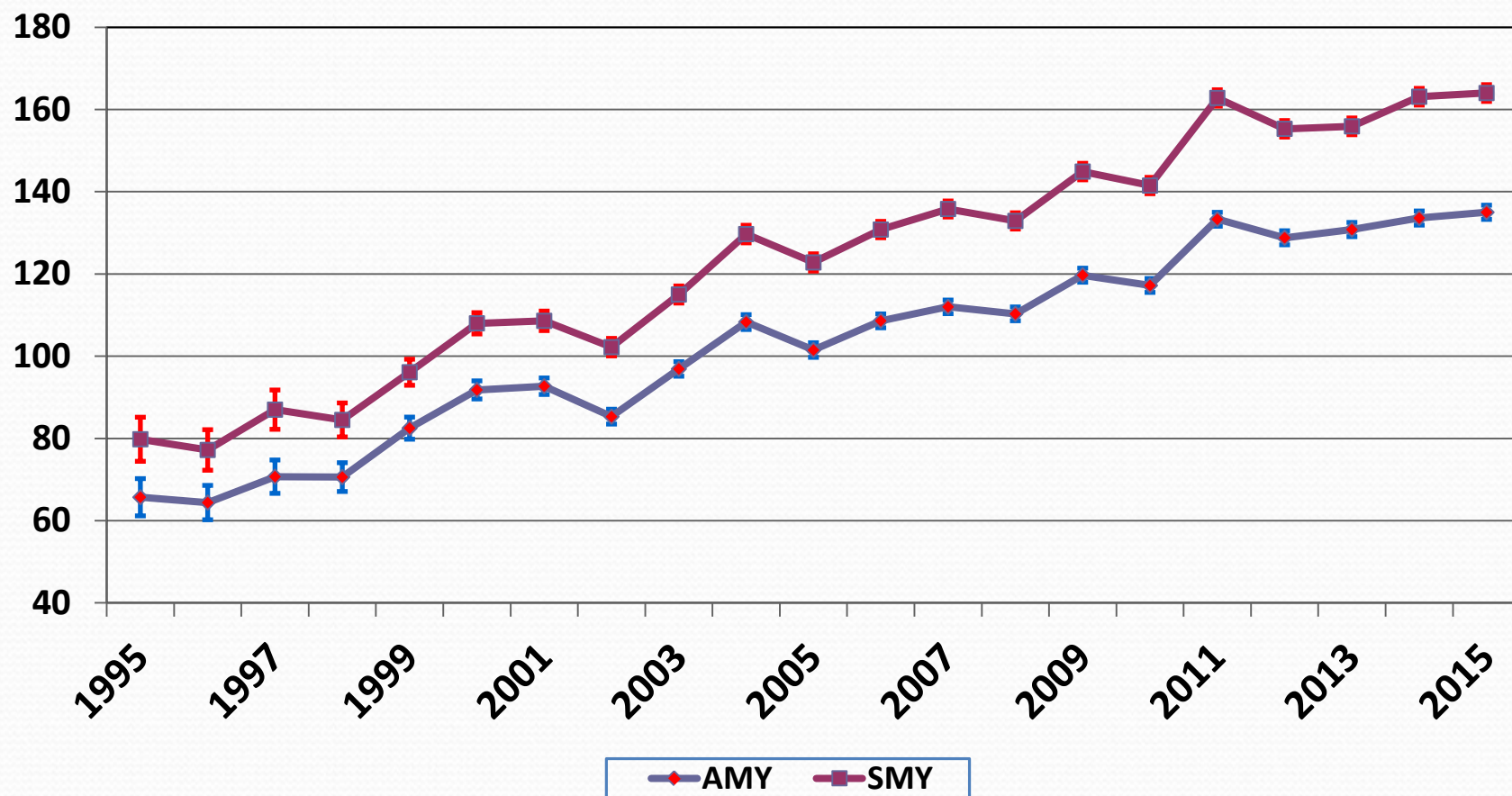


Auction rams



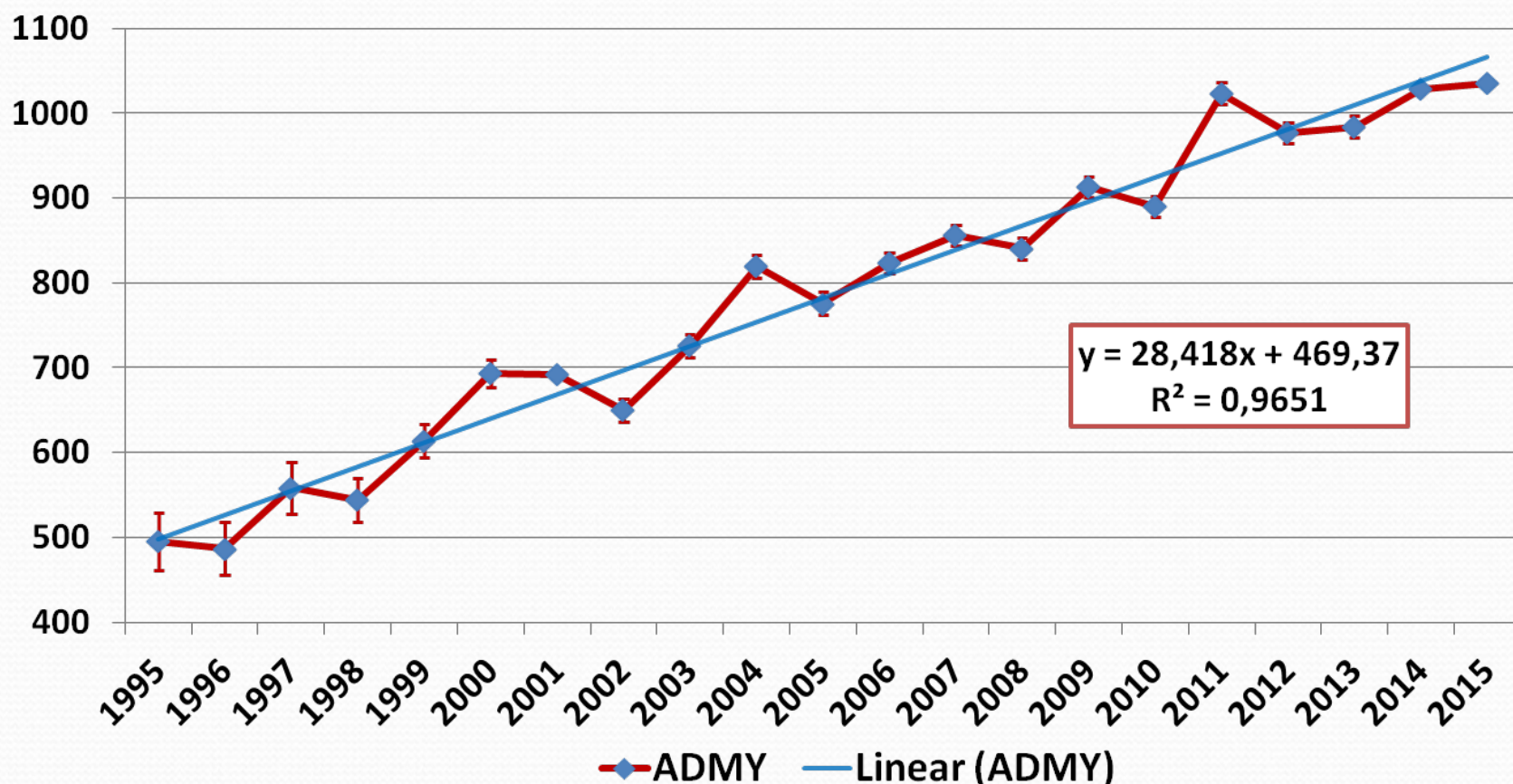
Ewes

Actual (AMY) and standardized milk yield (SMY) in flocks involved in the process of creation of Slovak dairy sheep (in liters)



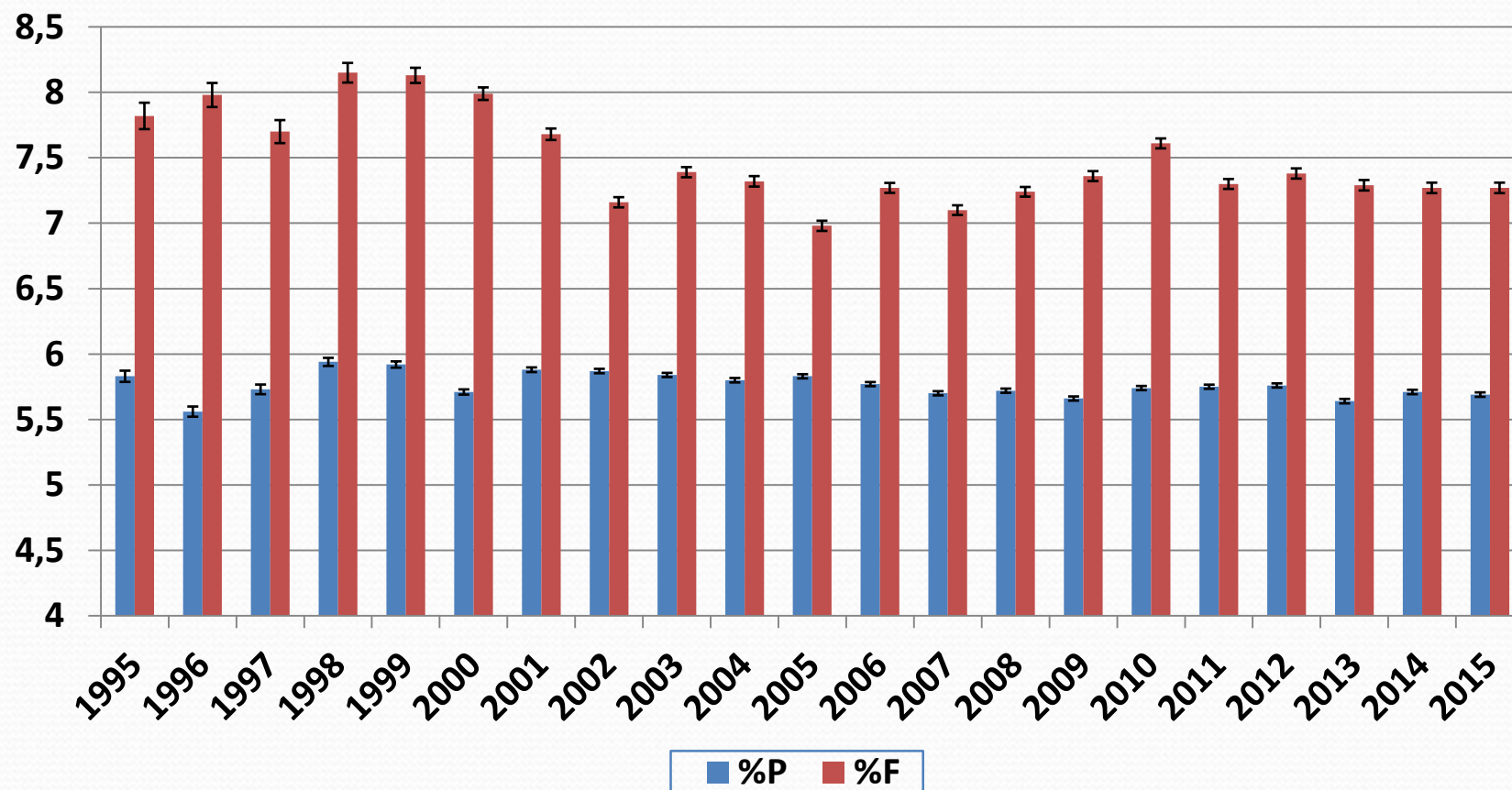
The standardized 150-D milk yield (SMY) increased more than twice: 79.8 l (1995) vs. 164.0 l (2015)

Average daily milk yield (ADMY) in flocks involved in the process of creation of Slovak dairy sheep (in ml)



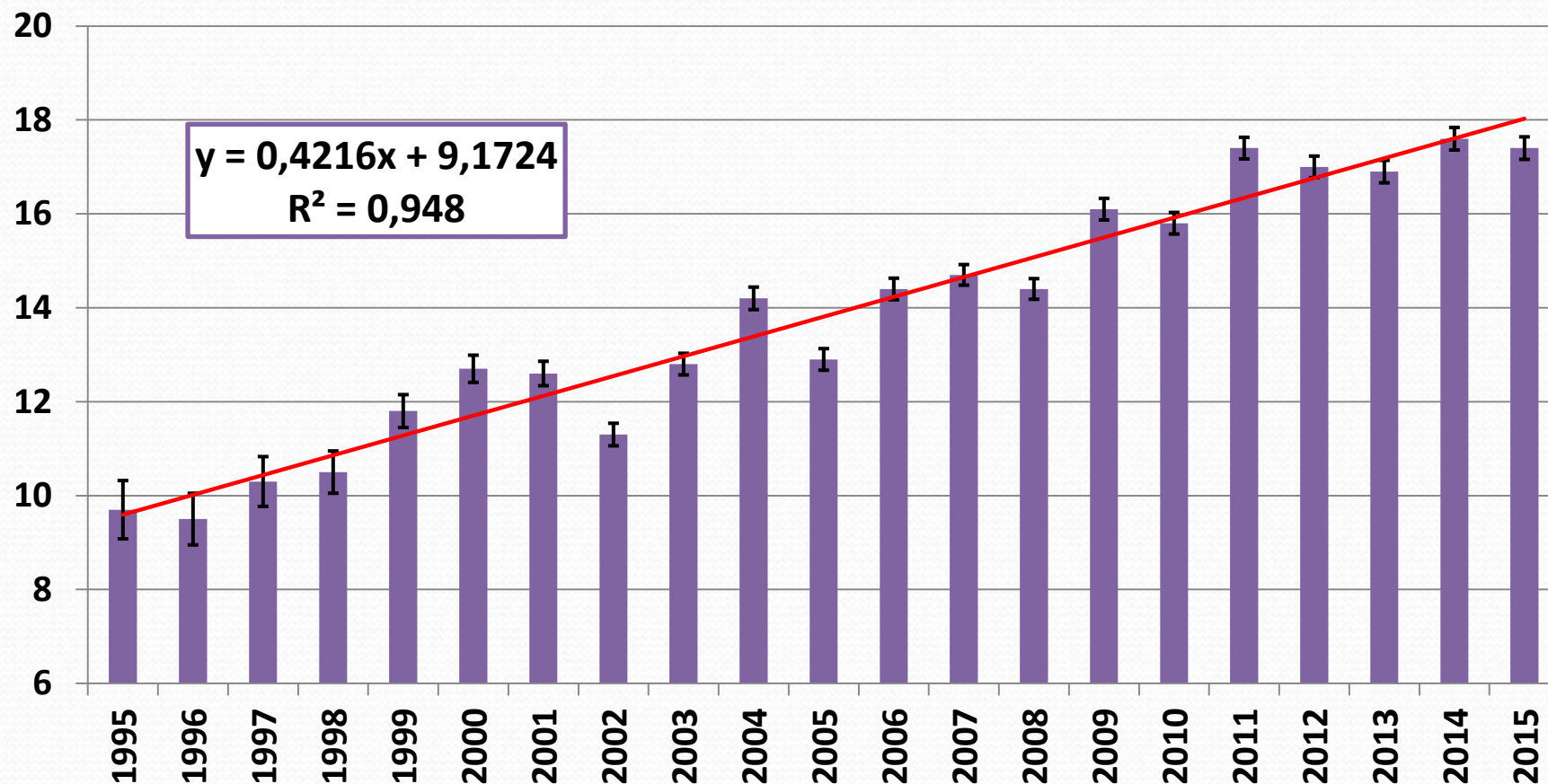
The average daily milk yield (ADMY) increased more than twice: 495.1 ml (1995) vs. 1,035.8 ml (2015)

Dynamics of changes in fat and protein content (in %) in the process of creation of Slovak dairy sheep.



Fat and protein contents decreased from 7.82 % (1995) to 7.27 % (2015) and from 5.83 % (1995) to 5.69 % (2015) – drop 7 and 2,4% respectively

Changes in the production of usable dry matter (fat + protein) in the process of creation of Slovak dairy sheep (in kg).



Usable dry matter increased by 79 %.

10% of most productive ewes of Slovak dairy sheep

| Trait | Number of ewes | LSM | Min. | Max. |
|----------------------------------|-----------------------|---------------|---------------|---------------|
| Actual milk yield (in l) | 2210 | 224,3 | 189,4 | 529,0 |
| Standardized milk yield (in l) | 2210 | 257,6 | 223,7 | 642,1 |
| Average daily milk yield (in ml) | 2210 | 1604,3 | 1396,1 | 4038,2 |
| Fat content (%) | 1985 | 6,63 | 2,83 | 10,19 |
| Protein content (%) | 1985 | 5,52 | 3,79 | 7,10 |
| Usable dry matter (kg) | 1985 | 26,60 | 15,0 | 72,9 |

Another parameters of SD

- Ewes of SD have good udder traits and milkability.
- Litter size is more than 150%.
- Average daily gains from birth to weaning were 0.26 kg (ewe lambs) and 0.30 kg (ram lambs).



Conclusion

- The population of SD was acknowledged as new composite breed in May 2017.
- Actually about five ths. ewes are included in performance testing.
- About 30% yearlings enter breeding scheme each year.
- About 50 ths. ewes of SD are kept in commercial flocks at present.



Thank you for your attention

