ANIMAL FEED AND MILK QUALITY IN CONVENTIONAL AND ORGANIC FARMING SYSTEMS

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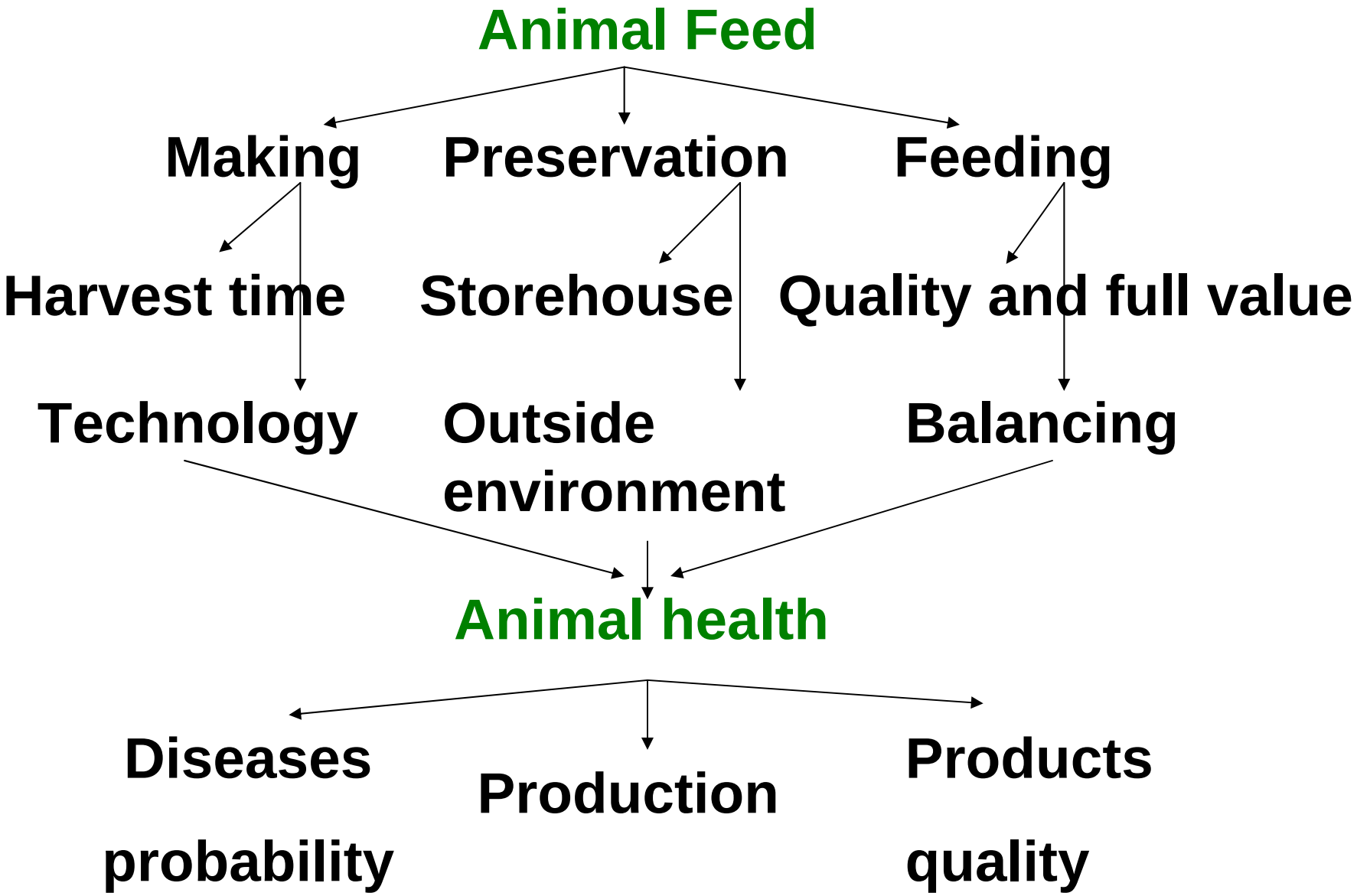
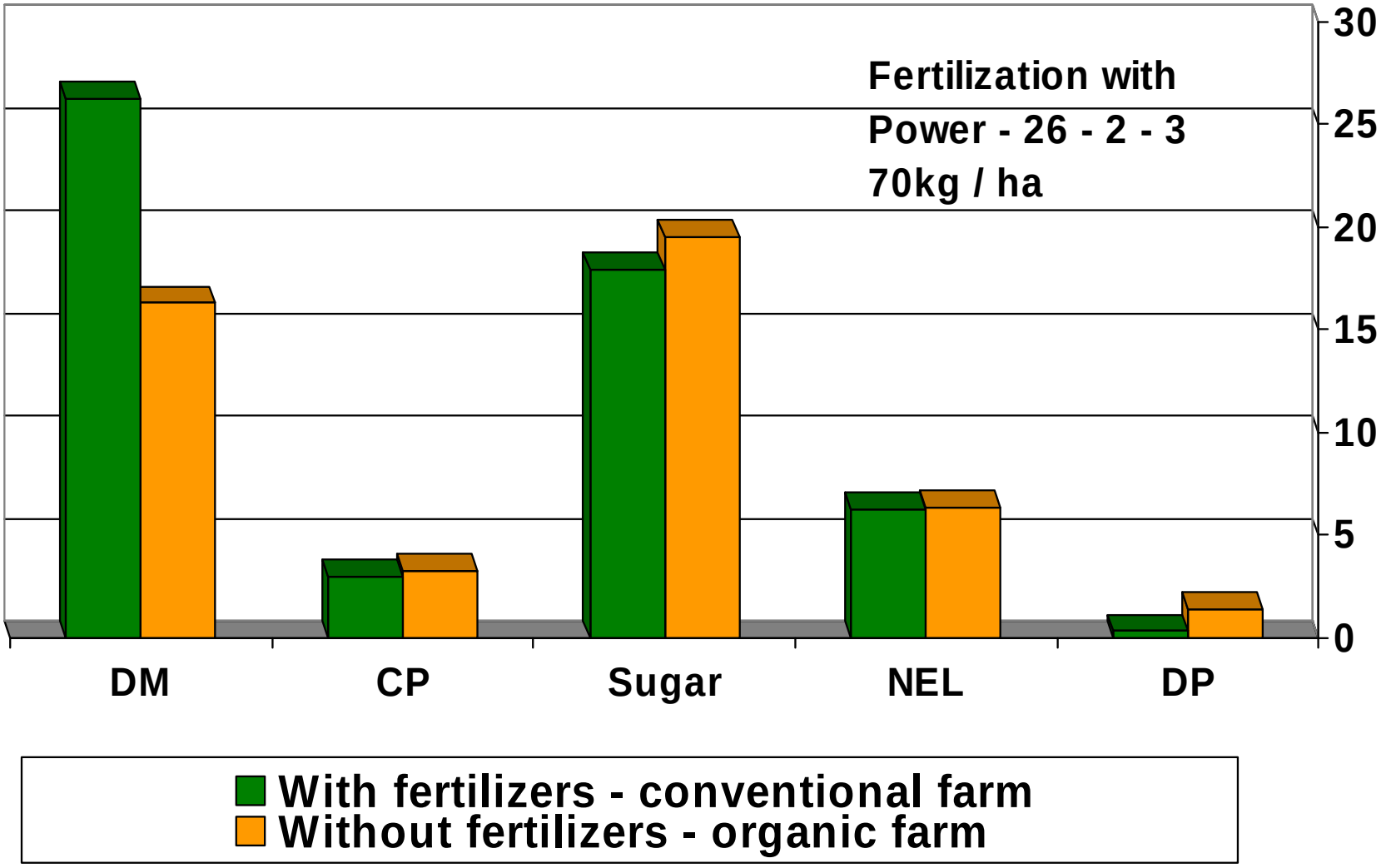
INTRODUCTION

Technology processes in the making of grass feed, preservation of it and feeding are closely connected. As a base of the work was the research carried out on obtaining non polluted, high value, safe and healthy food: in which the scientifically motivated main conditions about milk producing in all technological “chain” were investigated.

MATERIALS AND METHODS



Biochemical composition of grass feed depending on soil fertilizing, %



Amount of microelements in fed grass feed, mg/kg

	Conventional farming	Organic farming
Copper (Cu)	15.3	6.0
Zinc (Zn)	19.6	6.2
Iron (Fe)	14.3	3.5
Manganese (Mn)	35.6	18.5

Amino acids content of grass fodder, g/kg

Amino acids	Conventional farming	Organic farming
Methionine	0.54 ± 0.03	0.82 ± 0.02
Isoleucine	1.36 ± 0.08	1.52 ± 0.05
Leucine	1.50 ± 0.16	1.13 ± 0.03
Histidine	0.87 ± 0.16	1.04 ± 0.05
Lysine	1.54 ± 0.05	1.74 ± 0.11

Cows blood biochemical indices, depending from fed grass feed

Biochemical indices of blood	Grass in conventional farming system	Grass in organic farming system	Admissible fluctuations
Alcaline phosphatase, mg %	534.40 ± 7.60	455.00 ± 7.52	400 – 600
Total protein, mg %	8.54 ± 0.09	7.74 ± 0.07	7.35 – 8.65
Calcium, mg %	12.14 ± 0.30	10.31 ± 0.33	8.15 – 13.00
Phosphours , mg %	5.35 ± 0.11	5.10 ± 0.22	4.90 – 9.50
Glucose, mg %	47.82 ± 0.87	45.14 ± 1.36	40.00 – 65.00
Pyruvic acid, mg %	1.00 ± 0.05	1.38 ± 0.07	0.80 – 1.70
Carotene, mg %	2.34 ± 0.12	2.55 ± 0.13	0.40 – 2.80

RESULTS

During time of investigations cows health was evaluated clinically and there were not established essential health changes - illness of digestive tract, heart, blood vessels and diseases of urogenital system, incl. mastitis.

Milk quality depending from fed grass feed

Indices of milk quality	Conventional farming	Organic farming
Fat, %	4.33 ± 0.14	4.80 ± 0.20
Protein, %	3.41 ± 0.08	3.20 ± 0.04
Lactose, %	4.38 ± 0.02	4.71 ± 0.03
Cholesterol, mg 100 ml	12.56 ± 1.54	8.25 ± 0.78
Count of somatic cells in 1000/ml milk	1398.56 ± 256.47	468.62 ± 200.36
Total amount of microorganisms in 1000/ml milk	40.68 ± 77.10	216.72 ± 657.19

CONCLUSION

- **Level of crude protein, sugar and NEL was higher in organic farms grass fodder.**
- **Cows in both feeding systems do not show essential aberration of optimal health indices.**
- **In organic system cows milk contains essentially lower amount of cholestorol.**
- **Amount of fat and lactose were higher in milk of organic farm cows.**