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ALTERNATIVE FEED SOURCES IN RESPONSE TO CLIMATE CHANGE AND THEIR IMPACT ON MILK PRODUCTION IN DAIRY COWS

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INTRODUCTION

Climate change and recurrent droughts reduce the availability of conventional fodder crops in Central and Eastern Europe. This increases production costs, destabilises ration formulation and **reduces the profitability of dairy farms.**



MATERIAL AND METHOD

A systematic literature review was conducted on alternative feed sources in dairy cow nutrition, focusing on their effects on milk production and quality.



RESULTS AND DISCUSSION

Climate change and recurrent droughts reduce the availability and quality of traditional fodder crops used in dairy cow rations, especially maize silage, alfalfa, triticale and fodder wheat. This increases feed costs and creates the need for locally available **alternative feed sources.**

Table 1. Effects of the alternative feed sources on milk yield, composition and quality

Alternative source	Effect on milk yield	Effect on milk quality
Milk thistle cake	Neutral or positive, especially during transition period	Increases milk fat and supports metabolic health
Pumpkin seed cake	Does not reduce milk yield when replacing soybean meal	Improves antioxidant status and may support fatty-acid profile
Linseed meal/cake	Neutral or positive effect	Increases ALA, CLA and omega-3 fatty acids; reduces saturated fatty acids

Milk thistle cake, pumpkin seed cake and linseed meal/cake represent valuable **agro-industrial by-products** with nutritional and functional potential. **Milk thistle cake** is important due to its silymarin content, with antioxidant and hepatoprotective effects, especially useful during the transition period. **Pumpkin seed cake** is rich in protein and unsaturated fatty acids and can replace soybean meal without reducing milk yield. **Linseed meal/cake** has the strongest effect on milk fatty-acid profile, increasing omega-3 fatty acids, ALA and CLA, while reducing saturated fatty acids.

These **alternative feed sources** show neutral or positive effects on milk yield, milk composition, dry-matter intake and animal health.

CONCLUSIONS

Alternative oilseed cakes can support milk production, improve milk quality and reduce dependence on conventional feeds under drought conditions.

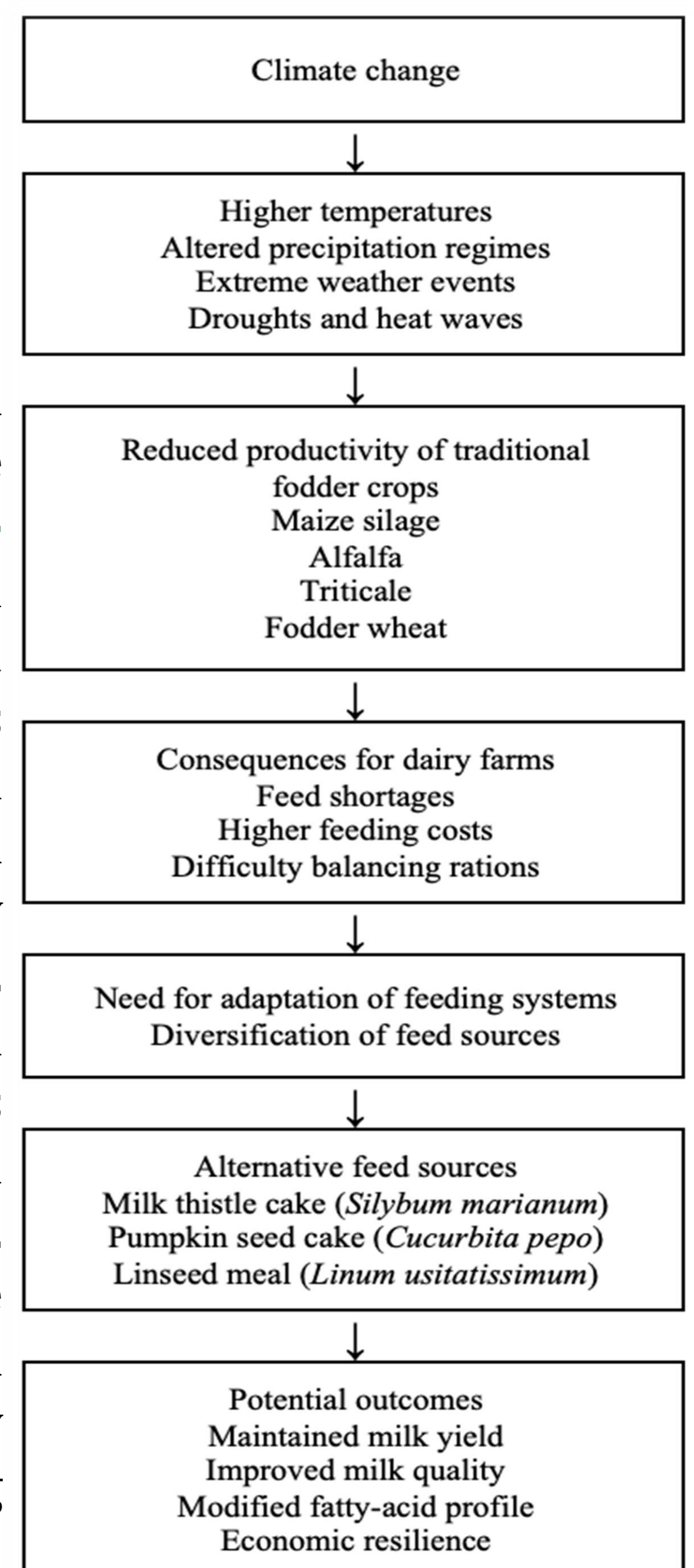


Fig. 1 Conceptual framework for alternative feed use under drought conditions.

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