



Deliverable Factsheet

Date:

Deliverable No.	D3.3
Working Package	WP3
Partner responsible	CSIC
Other partners participating	MTT, INCBNA , ORC
Nature	[Report]
Dissemination level	PU
Delivery date according to DoW	31 March 2014
Actual delivery date	1 September 2014
Finalization date	1 September 2014
Relevant Task(s):	Task 3.1: Development of novel and underutilized feed resources including by-products from processing of renewable raw materials

<p>Brief description of the Deliverable</p> <p>Potential of novel feed resources for organic and low input dairy production</p>
<p>Target audience</p> <p>Farmers and farm advisory services, Industries producing by-products suitable as feeds (e.g. food industry, bioenergy industry), Feed industry</p>
<p>Executive Summary</p> <p>This document follows a previous deliverable produced within SOLID (Deliverable 3.1. Desk-top review of novel feeds for inclusion in organic and low-input dairy production) that demonstrated the potential of a range of by-products and underutilized sources as animal feeds and highlighted the need for additional information concerning certain by-product feeds that should be obtained through a strong farmer and stakeholder interaction in order to guide the future research.</p> <p>The research presented includes <i>in vitro</i> and <i>in vivo</i> assessments as well as on-farm trials. - Results are included from different regions of Europe conducted by the different partners involved: MTT (Finland), ICDBNA (Romania) and CSIC (Spain).</p>

The experimental work addresses i) the need to alleviate the deficit of protein crops in Europe, ii) feeds from emerging industries in Eastern European countries, biofuel crops across Europe and wood industry in Northern Europe and iii) by-products from food and non-food processing industries in Southern and Western Europe. The main conclusions of the work conducted are: i) Grain legumes and rapeseed have potential to replace soy based protein supplements in dairy cow feeding, but mainly economic reasons restrict wider use, ii) wood based hemicellulose extracts are currently not available in the global feed market and agroforestry is used only to a limited extent and despite benefits being identified for both approaches, wider use of them would require large changes to the current circumstances., iii) the agro-industry sector in Southern Europe provides a range of valuable by-products with potential to be used as feed for small ruminants; however, the high moisture content represents the main limitation for the successful and wide use of some by-products by the feeding industry. Ensiling represents a promising option: silages made with tomato and olive by-products may replace medium quality forage (i.e. oat hay) in dairy goat farms provided that the farm is within 50 km from the site of production of the by-product, iv) oil industry derived by-products tested in Eastern Europe showed, in general, a higher content of oil and crude fibre, at the expense of crude protein content. Camelina meal could replace the classical sunflower meal in diets for low-input dairy cows (low production level) without noticeable adverse effects on milk yield, v) grape seed marc could partly replace cereals, as a temporary substitute (e.g. in case of feeds shortages) at a level of 1.5 kg/d, in diets for dairy cows offered protein based forages, without significant negative effects on milk yield and quality.

Potential Stakeholder impact

The utilization of by-products and other underutilized feeds in low input and organic dairy farming represents an opportunity to reduce feeding- associated costs, to increase sustainability and minimize the environmental cost of accumulating undesirable materials. In this scenario both food producers and livestock farmers can potentially benefit from the progress made in the use of such feeds. Furthermore, feed companies are highly interested in incorporating novel ingredients in diet formulations and the information provided in this document represents significant progress in that direction.

Interactions with other WPs Deliverables / joint outputs

WP no.	Relevant tasks	Partner(s) involved	Context of interaction
3	3.1	MTT, ABER, CSIC, INCDBNA	Desk-top review of novel feeds for inclusion in organic and low-input dairy.
3	3.2	ORC	Provision of willow samples for analysis, details presented in Deliverable 3.2
1	1.4.	ORC, INCDBNA, CSIC	On-farm participatory research