Progres® – the only resin acid product for animal feeds. Powerful and scientifically proven:

Published articles:

Aguirre, M., Vuorenmaa, J., Kettunen, H., Valkonen, E., Callens, C., Haesebrouck, F., Ducatelle, R., Van Immerseel, F. and Goosens, E. (2019). In-feed resin acids reduce matrix metalloproteinase activity in the ileal mucosa of healthy broilers without inducing major effects on the gut microbiota. In: Veterinary Research. https://veterinaryresearch.biomedcentral.com/track/pdf/10.1186/s13567-019-0633-3

Hasan, S., Saha, S., Junnikkala, S., Orro, T., Peltoniemi, O. and Oliviero, C. (2018) Late gestation diet supplementation of resin acid-enriched composition increases sow colostrum IgG content, piglet colostrum intake and modulates sow gut microbiota. In: *Animal*.

Kettunen, H., van Eerden, E., Lipiński, K., Rinttilä, T., Valkonen, E. and Vuorenmaa, J. (2017) Dietary resin acid composition as a performance enhancer for broiler chickens. In: *Journal of Applied Animal Nutrition* 5 1–8.

Kettunen, H., Vuorenmaa, J., Rinttilä, T., Grönberg, H., Valkonen, E. and Apajalahti, J. (2015) Natural resin acid-enriched composition as a modulator of intestinal microbiota and performance enhancer in broiler chicken. In: *Journal of Applied Animal Nutrition* 3 1–9.

Roy, K., Lyhs, U., Vuorenmaa, J. and Pedersen, K. (2018) In vitro inhibition studies of natural resin acids to Clostridium perfringens, Staphylococcus aureus and Escherichia coli O149. In: *Journal of Applied Animal Nutrition* 5 1–5.

Vienola, K., Jurgens, G., Vuorenmaa, J. and Apajalahti, J. (2018) Tall oil fatty acid inclusion in the diet improves performance and increases ileal density of lactobacilli in broiler chickens. In: *British Poultry Science*. (https://doi.org/10.1080/00071668.2018.1455965)

Published abstracts and posters:

Hasan, S., Junnikkala, S., Peltoniemi, O., Oliviero, C. (2017). Dietary supplementation of tall oil fatty acid and resin acid in farrowing sows can affect the colostrum quality. At: *The 9th European Symposium of Porcine Health Management (ESPHM)* 2017, Prague, Czech Republic. (Poster)

Hasan, S., Saha S., Junnikkala, S., Peltoniemi, O., Oliviero, C. (2018) Late gestation diet supplementation of resin acid-enriched composition increases sow colostrum IgG, piglet colostrum intake and modulates sow gut microbiota. At: *The 14th International Symposium on Digestive Physiology of Pigs (DPP) 2018*, Brisbane (Australia). (Presentation, Abstract)

Hasan, S., Saha S., Yun J., Peltoniemi, O., Oliviero, C. (2018). Dietary supplementation with tall oil fatty acid and resin acid increases sow colostrum IgG and piglets' colostrum intake in free farrowing pen. At: *The 10th European Symposium of Porcine Health Management (ESPHM) 2018*, Barcelona, Spain. (Presentation, Abstract)

Kettunen, H., Apajalahti, J., Valkonen, E., Rinttilä, T., Grönberg, H. and Vuorenmaa, J. (2014) A novel, resin-based dietary ingredient reduces the risk of necrotic enteritis in turkeys. At: *The XIVth European Poultry Conference (EPC) 2014,* Stavanger, Norway. (Poster)

Lipiński, K., Vuorenmaa, J., Antoszkiewicz, Z., Kaliniewicz, J., Mazur M., Makowski, Z. (2017) The efficiency of resin acid composition in turkeys nutrition. At: *The 21st European Symposium on Poultry Nutrition (ESPN)*, Salou, Spain. (Poster)

Roy, K., Lyhs, U. and Pedersen, K. (2015) Inhibition studies of natural resin acids to Clostridium perfringens and Escherichia coli O149. At: *The 1st International Conference on Necrotic Enteritis in Poultry 2015*, Copenhagen, Denmark. (Poster)

Valkonen, E. (2018) Performance enhancing effect of a natural resin acid composition in broiler chickens under a variety of challenge conditions. At: *The 15th European Poultry Conference (EPC) 2018*, Dubrovnik, Croatia. (Presentation, Abstract).

Suomen Rehu

PROGRES®

PRODUCT DATA
SPECIFICATION
Updated 01.06.2018

FEED MATERIAL

- Innovation from Finnish forest supporting productivity of animals
- Contains tall oil fatty acids and resin acids
- Nutritional energy source

INGREDIENTS

Tall Oil Fatty Acids, TOFA (Feed material register number 03721-EN)
Antioxidants (E320, E321)

FEEDING INSTRUCTIONS / RECOMMENDED DOSAGE

Broiler feeds	0.5 – 1 kg/t of feed
Turkey feeds	0.5 – 1.5 kg/t of feed
Other poultry feeds	0.5 – 1 kg/t of feed
Pig feeds	0.5 – 1.5 kg/t of feed
Calf feeds	1 kg/t of feed
Dairy cows	7 – 10 g/day/cow

CONTENT

Free fatty acids	90-92 %
Resin acids	8-10 %

TYPICAL FATTY ACID PROFILE

Linoleic acid	40.0 %
Oleic acid	26.9 %
Pinolenic acid	6.3 %
18:2 conjugated fatty acids	6.1 %
Other fatty acids	9.3 %
Unsaponifiables	< 2.0 %

ENERGY VALUES

AME poultry	33.9 MJ/kg	(8100 kcal/kg)
NE pig	30.9 MJ/kg	(7380 kcal/kg)
ME cattle	29.2 MJ/kg	(6970 kcal/kg)

UNDESIRABLE SUBSTANCES (ACCORDING TO EU LEGISLATION AND GMP+ LIMITS)

Sum of dioxin PCDD/F, TEQ	max 0.5 ng/kg
Sum of dioxin-like PCB, TEQ	max 0.5 ng/kg
As	max 2 mg/kg
Cd	max 1 mg/kg
Pb	max 10 mg/kg

Hg	max 0.1 mg/kg
Salmonella	negative in 25 g
PAH4	max 160 µg/kg

PHYSICAL PROPERTIES

Oil, yellow liquid			
Density	914 g/l (20 °C)	908 g/l (30 °C)	902 g/l (40 °C)
Dynamic viscosity	35 mPa·s (20 °C)		
Kinetic viscosity	39 cm^2/s (30 °C)		
Flash point	200 °C		
Cloud point	2 °C		

STORAGE AND HANDLING

Shelf life is 12 months from the production date, if stored in the original container according to the following instructions.
The product must be stored in a closed container or tank, away from sunlight. The recommended storage temperature for the product is 15-30 °C. Storing at temperatures differing from the recommended storage temperature may cause darkening (> 30 °C) or clouding (< 15 °C). Decreasing temperature increases viscosity of the product. Storing in cold temperature (< 10 °C) for longer periods can cause some precipitation or crystallization. This is a normal characteristic of the product. If affected, the crystallized product can be dissolved by heating it gently up to 50 °C. The heating does not have any effects on the functionality of the product. For minimizing the oxidation, it is recommended to avoid aeration of the product by strong mixing or circulation. Storing in carbon steel tanks is not recommended since fatty acids will react with iron and discolor the product.

The product is safe to use under recommended dosage levels. Progres® should not be used in premixes or mineral feeds. Porous material such as textiles, paper etc. might cause an exothermic reaction and overheating when wetted with this material. Information on the safety can be found in Material Safety Data Sheet.

PACKAGING

IBC container, drum and canister. Bulk deliveries also available.

net / kg	pcs / pallet	kg / pallet
900	1	900
200	3	600
20	According to order	

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