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COMMISSION IMPLEMENTING REGULATION (EU) 2026/2158

of 28 September 2026

concerning the authorisation of clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry as feed additives for all animal species

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 on additives for use in animal nutrition ([1]), and in particular Article 9(2) thereof,

Whereas:

(1) Regulation (EC) No 1831/2003 provides for the authorisation of additives for use in animal nutrition and for the grounds and procedures for granting such an authorisation. Article 10(2) of that Regulation provides for the re-evaluation of additives authorised pursuant to Council Directive 70/524/EEC ([2]).

(2) The substances clove bud essential oil and clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry were authorised without a time limit in accordance with Directive 70/524/EEC as feed additives for all animal species. These substances were subsequently entered in the Register of Feed Additives as existing products, in accordance with Article 10(1), point (b), of Regulation (EC) No 1831/2003.

(3) In accordance with Article 10(2) of Regulation (EC) No 1831/2003 in conjunction with Article 7 thereof, an application was submitted for the authorisation of clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil (the latter previously included in the entry of clove leaf essential oil) from *Syzygium aromaticum* (L.) Merr. & L.M. Perry as feed additives for all animal species, requesting the additives to be classified in the additive category 'sensory additives' and in the functional group 'flavouring compounds'. The application was accompanied by the particulars and documents required under Article 7(3) of Regulation (EC) No 1831/2003.

(4) The applicant requested the additives to be authorised also for use in water for drinking. However, Regulation (EC) No 1831/2003 does not allow the authorisation of 'flavouring compounds' for use in water for drinking. Therefore, the use of these additives in water for drinking should not be allowed.

(5) The European Food Safety Authority ('the Authority') concluded in its opinion of 5 July 2023 ([3]) that clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry are of no concern for target species for fattening and are considered very unlikely to induce adverse effects in any other species and in long-living and reproductive animals at certain maximum concentrations further specified for each species. Furthermore, the Authority concluded that no concerns for consumers were identified following the use of clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry, under the proposed conditions, and that their use, under the proposed conditions, is not expected to pose a risk to the environment. The Authority concluded that clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry should be considered as irritants to skin and eyes and as skin and respiratory sensitisers. The Authority indicated that unprotected users may be exposed to methyleugenol when handling the additives and that the exposure of the users should therefore be minimised to

([1]) OJ L 268, 18.10.2003, p. 29, ELI: http://data.europa.eu/eli/reg/2003/1831/oj.
([2]) Council Directive 70/524/EEC of 23 November 1970 concerning additives in feeding-stuffs (OJ L 270, 14.12.1970, p. 1, ELI: http://data.europa.eu/eli/dir/1970/524/oj).
([3]) *EFSA Journal* 2023; 21(7):e08183, https://doi.org/10.2903/j.efsa.2023.8183.

reduce that risk. The Authority further concluded that since clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry are recognised to flavour food and their function in feed would be essentially the same as that in food, no further demonstration of efficacy is considered necessary. The Authority also verified the report on the method of analysis of the feed additives in feed submitted by the Reference Laboratory set up by Regulation (EC) No 1831/2003.

(6) In view of the above, the Commission considers that clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry satisfy the conditions provided for in Article 5 of Regulation (EC) No 1831/2003. Accordingly, the use of these substances should be authorised as specified in the Annex to this Regulation. The Commission considers that the presence of methyleugenol, a substance of concern belonging to the group of *p*-allylalkoxybenzenes, in clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry, requires the setting of maximum content for these feed additives in complete feed. It also considers that the simultaneous use of clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry with other feed additives is permitted provided that the combined content of *p*-allylalkoxybenzenes (methyleugenol, estragole, elemicin, safrole, myristicin, dillapiole, and apiole) in feed materials and compound feed remains below the content that would result from using the authorised feed additive with the highest content of those substances at its maximum or recommended maximum content for the relevant animal species or category. In addition, the Commission considers that appropriate protective measures should be taken to prevent adverse effects on the health of the users of the additive.

(7) Since safety reasons do not require the immediate application of the modifications to the conditions of authorisation of the substances concerned, it is appropriate to provide for a transitional period for interested parties to prepare themselves to meet the new requirements resulting from the authorisation.

(8) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS REGULATION:

Article 1

Authorisation

The substances specified in the Annex, belonging to the additive category ‘sensory additives’ and to the functional group ‘flavouring compounds’, are authorised as additives in animal nutrition, subject to the conditions laid down in that Annex.

Article 2

Transitional measures

1. The feed additives clove bud essential oil, clove leaf essential oil and beta-caryophyllene-rich fraction of clove leaf essential oil from *Syzygium aromaticum* (L.) Merr. & L.M. Perry, as authorised pursuant to Directive 70/524/EEC and premixtures containing those additives, which are produced and labelled before 19 April 2027 in accordance with the rules applicable before 19 October 2026 may continue to be placed on the market and used until the stocks concerned are exhausted.

2. Compound feed and feed materials containing the feed additives referred to in paragraph 1, which are produced and labelled before 19 October 2027 in accordance with the rules applicable before 19 October 2026 may continue to be placed on the market and used until the stocks concerned are exhausted, if they are intended for food-producing animals.

3. Compound feed and feed materials containing the feed additives referred to in paragraph 1, which are produced and labelled 19 October 2028 in accordance with the rules applicable before 19 October 2026 may continue to be placed on the market and used until the stocks concerned are exhausted, if they are intended for non-food producing animals.

Article 3

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 28 September 2026.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
Category: Sensory additives. Functional group: Flavouring compounds								
2b188-eo	Clove bud essential oil	*Additive composition* Essential oil obtained from the dried flower buds of *Syzygium aromaticum* (L.) Merr. & L.M. Perry (synonym: *Eugenia caryophyllata* Thunb.) Liquid form *Characterisation of the active substance* Clove bud essential oil: Essential oil, as defined by the Council of Europe (1), obtained from the dried flower buds of *Syzygium aromaticum* (L.) Merr. & L.M. Perry by steam distillation and further condensation of volatile constituents and separation from the aqueous phase by decantation. CAS number: 8000-34-8 Einecs: 284-638-7 (2) FEMA number:2323 CoE number:188 Specifications Eugenol: 67-85 % β-Caryophyllene: 2-16 % Eugenyl acetate: 5-15 % Estragole: ≤ 0,01 % Methyleugenol: ≤ 0,13 %	Turkeys for fattening	—	—	43,0	1. The additive shall be incorporated into the feed in the form of a premixture. 2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated. 3. Simultaneous use of clove bud essential oil with other feed additives is permitted provided that the combined content of *p*-allylalkoxybenzenes (methyleugenol, estragole, elemicin, safrole, myristicin, dillapiole, and apiole) in feed materials and compound feed remains below the content that would result from using the authorised feed additive with the highest content of those substances at its maximum or recommended maximum content for the relevant animal species or category.	19 October 2036
			Chickens for fattening and minor poultry for fattening	—	—	32,0		
			All poultry reared for laying or breeding	—	—	28,5		
			Ornamental birds	—	—	28,5		
			All poultry for laying or breeding	—	—	28,5		
			Pigs for fattening	—	—	50,0		
			Pigs for fattening of minor *Suidae*	—	—	50,0		
			Piglets (suckling and weaned) of all *Suidae*	—	—	30,5		
			All *Suidae* for reproduction	—	—	50,0		
			Calves for fattening	6 months	—	50,0		
			Sheep and goats	—	—	50,0		

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
		Analytical method ([3]) For the determination of eugenol (phytochemical marker) in the feed additive: — Gas chromatography coupled with flame ionisation detection (GC-FID) (ISO 3142)	Cattle for fattening; other ruminants for fattening except sheep, goats and calves for fattening up to 6 months old; *Camelidae* for fattening	—	—	50,0	4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address the potential risks resulting from their use. Where those risks cannot be eliminated by such procedures and measures, the additive and premixtures shall be used with personal breathing eye and skin protective equipment.	
			All other ruminants; all other *Camelidae*	—	—	50,0		
			Equidae	—	—	50,0		
			Leporidae	—	—	30,5		
			Salmonids and minor fin fish	—	—	50,0		
			Dogs	—	—	50,0		
			Cats	—	—	25,0		
			Ornamental fish	—	—	50,0		
			Other species and categories	—	—	25,0		

([1]) Natural sources of flavourings – Report No 2 (2007).
([2]) Here it only refers to the essential oil from dried flower buds of *Syzygium aromaticum* (L.) Merr. & L.M. Perry.
([3]) Details of the analytical methods are available at the following address of the Reference Laboratory: https://joint-research-centre.ec.europa.eu/eurl-fa-eurl-feed-additives/eurl-fa-authorisation/eurl-fa-evaluation-reports_en.

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
Category: Sensory additives. Functional group: Flavouring compounds								
2b188i-eo	Clove leaf essential oil	*Additive composition* Essential oil obtained from the leaves of *Syzygium aromaticum* (L.) Merr. & L.M. Perry Liquid form *Characterisation of the active substance* Clove leaf essential oil: Essential oil, as defined by the Council of Europe ([1]), obtained from the leaves of *Syzygium aromaticum* (L.) Merr. & L.M. Perry by steam distillation and further condensation of volatile constituents and separation from the aqueous phase by decantation. CAS number: 8000-34-8 Einecs: 284-638-7 ([2]) FEMA number:2325 CoE number:188 Specifications Eugenol: 80-95 % β-caryophyllene: 4-17 % Eugenyl acetate: ≤ 1 % Estragole: ≤ 0,01 % Methyleugenol: ≤ 0,03 %	Turkeys for fattening	—	—	48	1. The additive shall be incorporated into the feed in the form of a premixture. 2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated. 3. Simultaneous use of clove leaf essential oil with other feed additives is permitted provided that the combined content of *p*-allylalkoxybenzenes (methyleugenol, estragole, elemicin, safrole, myristicin, dillapiole, and apiole) in feed materials and compound feed remains below the content that would result from using the authorised feed additive with the highest content of those substances at its maximum or recommended maximum content for the relevant animal species or category.	19 October 2036
			Chickens for fattening and minor poultry for fattening	—	—	36		
			All poultry reared for laying or breeding	—	—	54		
			Ornamental birds	—	—	54		
			All poultry for laying or breeding	—	—	54		
			Pigs for fattening	—	—	77		
			Pigs for fattening of minor *Suidae*	—	—	65		
			Piglets (suckling and weaned) of all *Suidae*	—	—	65		
			All *Suidae* for reproduction	—	—	95		
			Calves for fattening	6 months	—	100		

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
		Analytical method ([3]) For the determination of eugenol (phytochemical marker) in the feed additive: — Gas chromatography coupled with flame ionisation detection (GC-FID) (ISO 3141)	Sheep and goats	—	—	100	4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address the potential risks resulting from their use. Where those risks cannot be eliminated by such procedures and measures, the additive and premixtures shall be used with personal breathing eye and skin protective equipment.	
			Cattle for fattening; other ruminants for fattening except sheep, goats and calves for fattening up to 6 months old; *Camelidae* for fattening	—	—	100		
			All other ruminants; all other *Camelidae*	—	—	92		
			Equidae	—	—	100		
			Leporidae	—	—	57		
			Salmonids and minor fin fish	—	—	100		
			Dogs	—	—	100		
			Cats	—	—	28		
			Ornamental fish	—	—	100		
			Other species and categories	—	—	28		

([1]) Natural sources of flavourings – Report No 2 (2007).
([2]) Here it only refers to the essential oil from leaves of *Syzygium aromaticum* (L.) Merr. & L.M. Perry.
([3]) Details of the analytical methods are available at the following address of the Reference Laboratory: https://joint-research-centre.ec.europa.eu/eurl-fa-eurl-feed-additives/eurl-fa-authorisation/eurl-fa-evaluation-reports_en.

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
Category: Sensory additives. Functional group: Flavouring compounds								
2b188ii-eo	Beta-caryophyl-lene-rich fraction of clove leaf essential oil	*Additive composition* Essential oil obtained from the leaves of *Syzygium aromaticum* (L.) Merr. & L.M. Perry Liquid form *Characterisation of the active substance* Beta-caryophyllene-rich fraction of clove leaf essential oil: Essential oil, as defined by the Council of Europe [1], obtained from the leaves of *Syzygium aromaticum* (L.) Merr. & L.M. Perry by fractional distillation of clove leaf oil itself. CoE number:188 Specifications β-caryophyllene: 70-90 % Estragole: ≤ 0,01 % Methyleugenol: ≤ 0,06 % *Analytical method* [2] For the determination of β-caryophyllene (phytochemical marker) in the feed additive: Gas chromatography coupled with flame ionisation detection (GC-FID) (ISO 11024)	Turkeys for fattening	—	—	34	1. The additive shall be incorporated into the feed in the form of a premixture. 2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated. 3. Simultaneous use of beta-caryophyllene-rich fraction of clove leaf essential oil with other feed additives is permitted provided that the combined content of *p*-allylalkoxybenzenes (methyleugenol, estragole, elemicin, safrole, myristicin, dillapiole, and apiole) in feed materials and compound feed remains below the content that would result from using the authorised feed additive with the highest content of those substances at its maximum or recommended maximum content for the relevant animal species or category.	19 October 2036
			Chickens for fattening and minor poultry for fattening	—	—	26		
			All poultry reared for laying or breeding	—	—	38		
			Ornamental birds	—	—	38		
			All poultry for laying or breeding	—	—	38		
			Pigs for fattening	—	—	54		
			Pigs for fattening of minor *Suidae*	—	—	46		
			Piglets (suckling and weaned) of all *Suidae*	—	—	46		
			All *Suidae* for reproduction	—	—	67		
			Calves for fattening	6 months	—	114		
			Sheep and goats	—	—	101		

ELI: http://data.europa.eu/eli/reg_impl/2026/2158/oj

Identifi-cation number of the additive	Name of the additive	Composition, chemical formula, description, analytical method.	Species or category of animal	Maxi-mum age	Minimum content	Maximum content	Other provisions	End of period of authori-sation
					mg active substance /kg of complete feed with a moisture content of 12 %			
			Cattle for fattening; other ruminants for fattening except sheep, goats and calves for fattening up to 6 months old; *Camelidae* for fattening	—	—	101	4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address the potential risks resulting from their use. Where those risks cannot be eliminated by such procedures and measures, the additive and premixtures shall be used with personal breathing eye and skin protective equipment.	
			All other ruminants; all other *Camelidae*	—	—	65		
			Equidae	—	—	101		
			Leporidae	—	—	40		
			Salmonids and minor fin fish	—	—	112		
			Dogs	—	—	50		
			Cats	—	—	20		
			Ornamental fish	—	—	50		
			Other species and categories	—	—	20		

([1]) Natural sources of flavourings – Report No 2 (2007).
([2]) Details of the analytical methods are available at the following address of the Reference Laboratory: https://joint-research-centre.ec.europa.eu/eurl-fa-eurl-feed-additives/eurl-fa-authorisation/eurl-fa-evaluation-reports_en.