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Exposure of unweaned calves to the toxic compound of giant fennel

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Introduction:

- Coagulopathy occurs in animal intoxicated with Giant fennel (*Ferula communis*)
- Giant fennel contains ferulenol which can block vitamin K regeneration cycle by the same mechanism that dicoumarol, which is produced from coumarin in fermented sweet clover hay [1].
- Focus on a Corsica herd of free range cattle exposed to giant fennel
- Does exposition of mother lead to an exposition of unweaned calves ?

Results:

Results are presented in figure 1.

Adults and weaned calves:

30/31 samples showed positive results for ferulenol



Confirm the exposure of cattle to giant fennel

Unweaned calves:

Almost all are positive for ferulenol (4/5)



Source of exposure is milk

Incidental finding :

-The majority of blood samples of adults and weaned calves (28/31) are positive for dicoumarol. The origin of dicoumarol is currently unknown.

Material and methods:

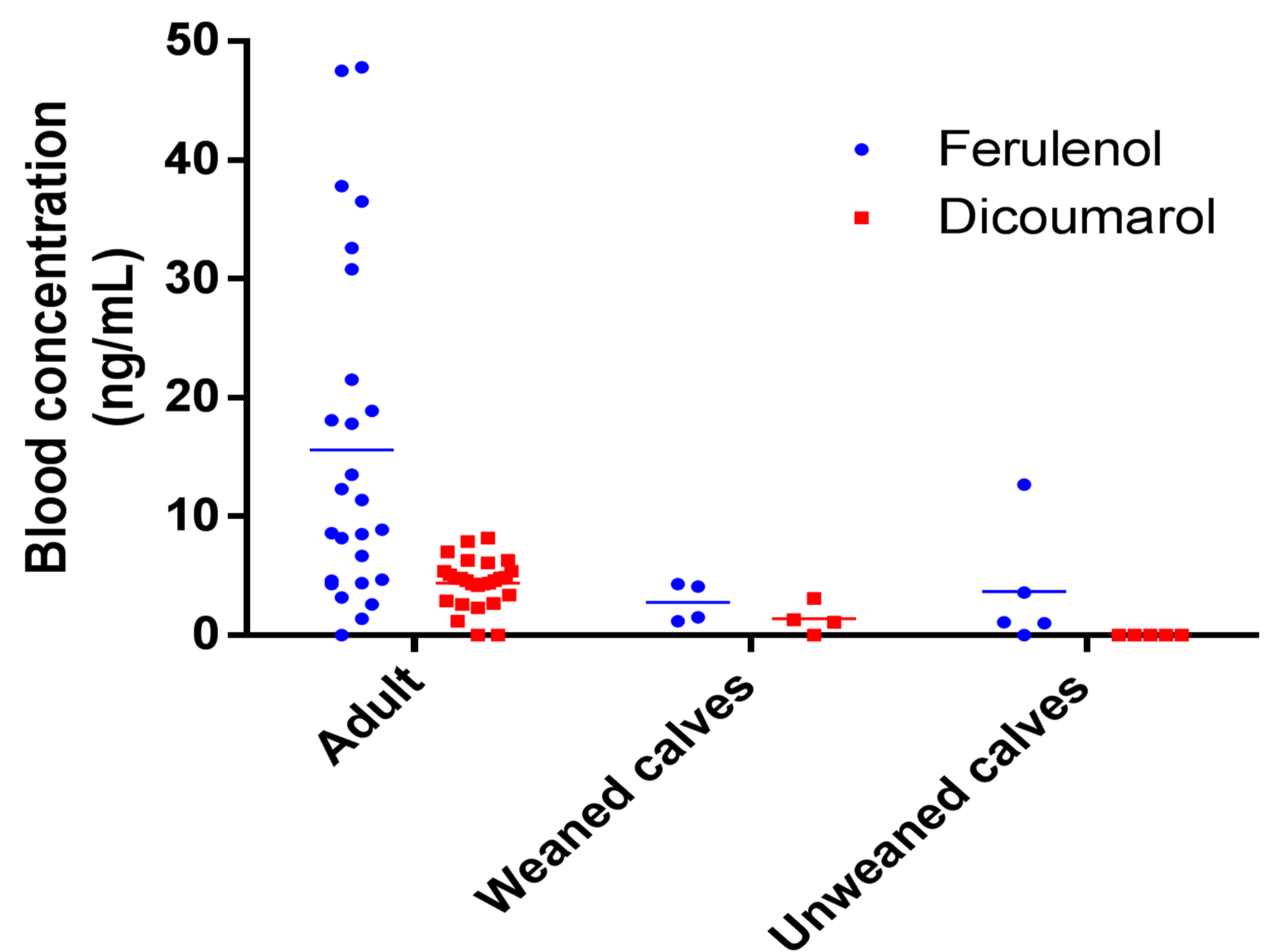
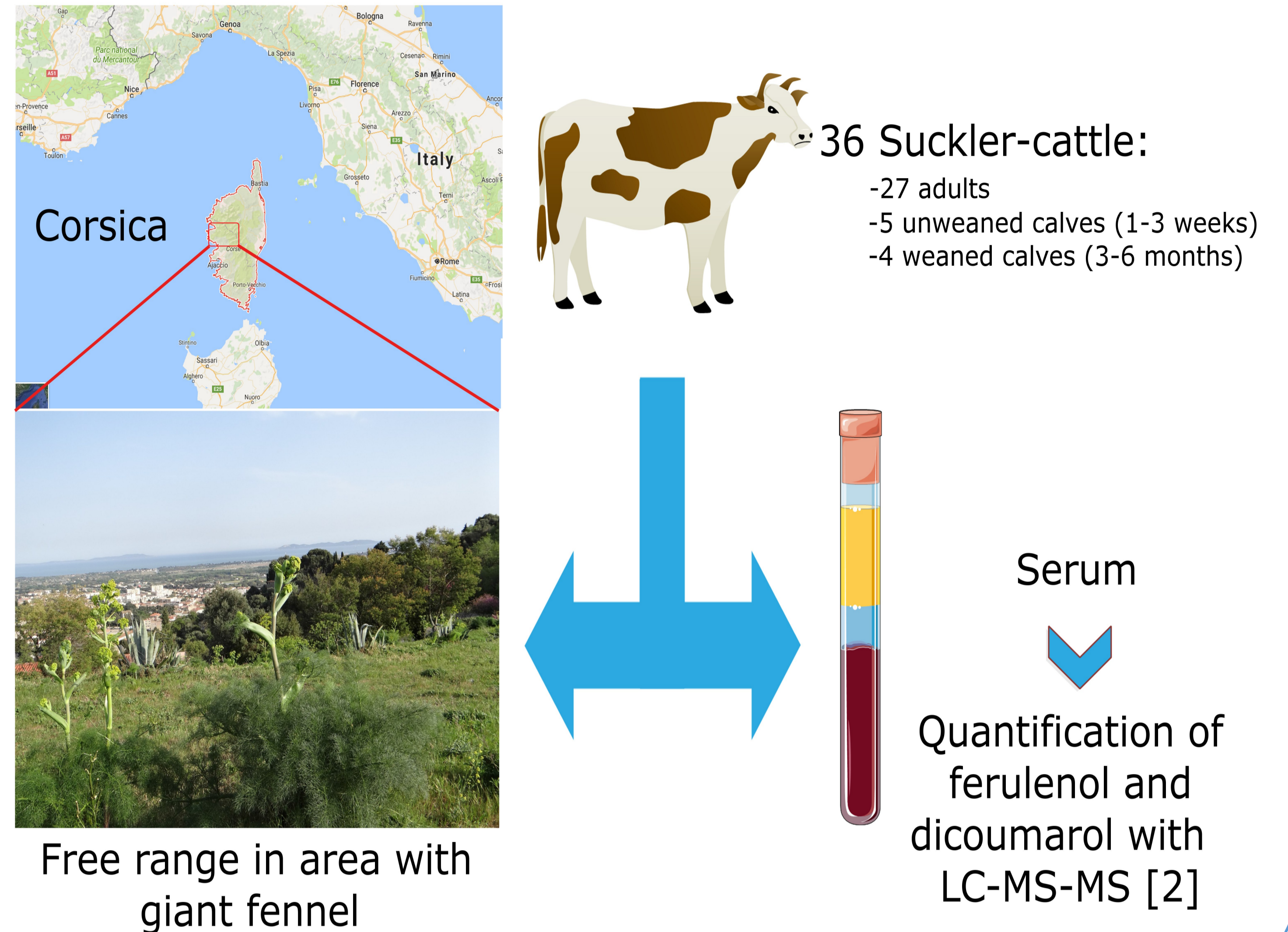


Figure 1: Blood concentration in ferulenol and dicoumarol

Discussion:

- . This study shows that **ferulenol is excreted in milk**. These results raise many questions on the **consequences of these excretions**. Currently, the **absence of reported intoxication in unweaned calves** is consistent with the weak level of ferulenol in their blood (median: 1.1 ng/mL). Further investigations are necessary to assess the possible importance of this exposure in animals and the impact of contaminated milk in **human health**.
- . Regarding dicoumarol, it is not possible to conclude on milk excretion. Moreover, its origin remains a mystery. Sweet clover was not found in hay given by the farmer. The possible presence of dicoumarol in fresh sweet clover growing in the area is under investigation.

Conclusion:

Cows exposed to ferulenol after eating giant fennel excrete ferulenol in milk, that leads to an exposure of unweaned calves.

References:

1. Louvet M-S et al. Comparative inhibitory effect of prenylated coumarins, ferulenol and ferprenin, contained in the 'poisonous chemotype' of *Ferula communis* on mammal liver microsomal VKORC1 activity. *Phytochemistry*. oct 2015;118:124-30.
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