

PLANTS AFFECTING REPRODUCTION IN SHEEP

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1. INTRODUCTION

Mediterranean pasture plants impair sheep reproduction (fertility, cycles, embryo loss, abortions, malformations), causing productive losses.

2. OBJECTIVES

- Identify plant species associated with reproductive toxicity in sheep.
- Describe the main bioactive compounds involved.
- Summarise the reproductive effects.
- Evaluate the productive consequences in sheep farming systems.
- Outline preventive and correct management strategies to reduce exposure risk.

3. METHODOLOGY

Selection criteria:

- Reviewed scientific articles
- Studies involving sheep or applicable ruminant species
- Publications describing toxic compounds and reproductive effects

4. TOXIC PLANTS, MECHANISM OF ACTION AND REPRODUCTIVE EFFECTS

TOXIC PLANT	TOXIC COMPOUND	MECHANISM OF ACTION	REPRODUCTIVE EFFECT
 <i>Trifolium subterraneum</i>	Phytoestrogens (isoflavones) (formononetin)	Endocrine disruption: estrogen receptor binding 	“Clover disease”: ↓ fertility, embryonic death, abortions and dystocia.
 <i>Medicago sativa</i>	Phytoestrogens (coumestans)	Endocrine disruption: estrogenic activity 	↓ fertility, interference with embryonic implantation.
 <i>Lupinus</i> sp.	Quinolizidine alkaloids (lupanine, anarginine)	Fetal immobilization 	Congenital malformations: arthrogryposis, scoliosis, cleft palate, dystocia.
 <i>Veratrum album</i>	Steroidal alkaloids (cyclopamine)	Hedgehog inhibition 	Congenital malformations: cyclopia, cerebral hypoplasia, craniofacial malformations.
 <i>Conium maculatum</i>	Piperidine alkaloids (coniine)	Neuromuscular blockage 	Teratogenesis, embryonic resorption and abortions, neonatal mortality.
 <i>Cicuta virosa</i>	Alcohol (cicutoxin)	Neuronal hyperexcitation 	Abortion to severe physiological stress, fetal mortality due hypoxia.
 <i>Nicotiana glauca</i> <i>N. tabacum</i>	Piridine alkaloids (nicotine, anabesine)	Neuromuscular blockage 	Teratogenesis: arthrogryposis, lordosis, vertebral deformations, cleft palate.
 <i>Neerium oleander</i>	Cardiac glycosides (oleandrin, nerrin)	Cardiotoxic effects 	Abortions, fetal death due to maternal hypoxia, pregnancy loss.
 <i>Senecio</i> spp.	Pyrrolizidine alkaloids (senecionine)	Hepatic dysfunction 	↓ fertility, abortions, neonatal weakness, embryonic resorption.

5. PRODUCTIVE IMPACT

- Lower pregnancy rates
- More abortions and weak lambs
- Higer costs → reduced profitability

6. PREVENTION

Pasture management (monitor toxic plants, diversity, overgrazing, hay/silage) plus **Veterinary actions** (risk assessment, early detection, training, preventive programs).

7. CONCLUSIONS

- 1 Toxic plants cause endocrine disruption, infertility, abortions, and malformations in sheep.
- 2 Main compounds: phytoestrogens and alkaloids.
- 3 Reproductive losses reduce productivity.
- 4 Early plant ID and proper pasture management are essential.
- 5 Preventive strategies and veterinary supervision are key to protecting flock reproduction.