

# How Trees can benefit Livestock

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## Height vs. Distance

Wind direction →

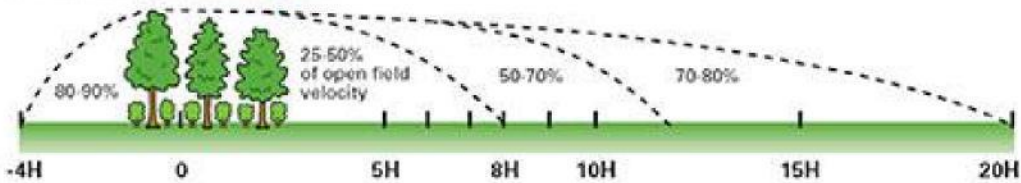
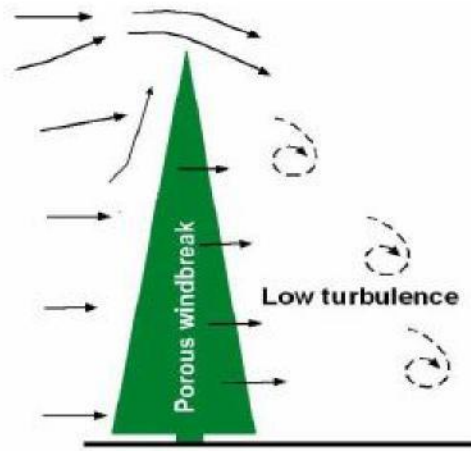
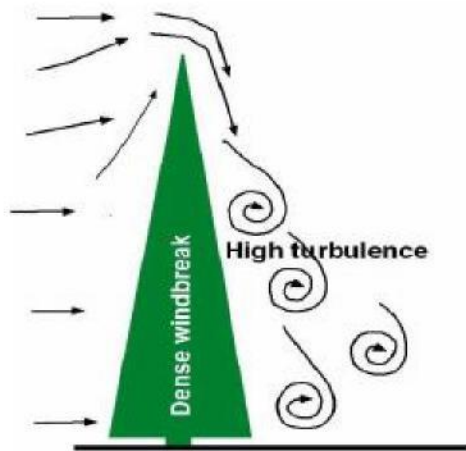
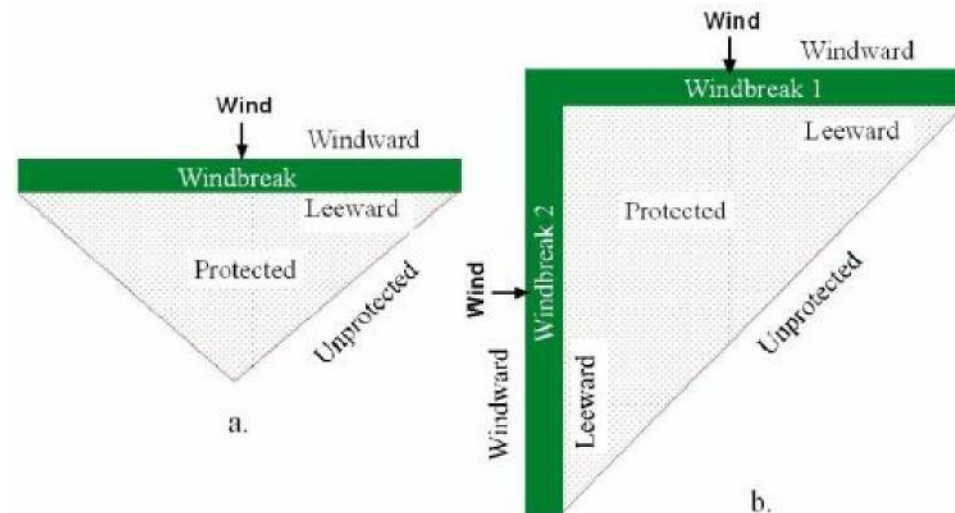


Figure 4. Trees can reduce wind velocity by 50% to a downwind distance equivalent to 8 times tree height. Image Credit: Paul Way, Laura Stemweis and Jane Lenahan, Iowa State University Extension. Farmstead Windbreaks: Planning (<http://www.extension.iastate.edu/publications/pm1716.pdf>)



Tamang et al 2012









(Ralph, 1981)	LAMB MORTALITY (%)	
	SHELTER	NO SHELTER
Single births	8.9	17.5
Multiple births	38.8	51.3



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## Variation in the diet of domestic stock

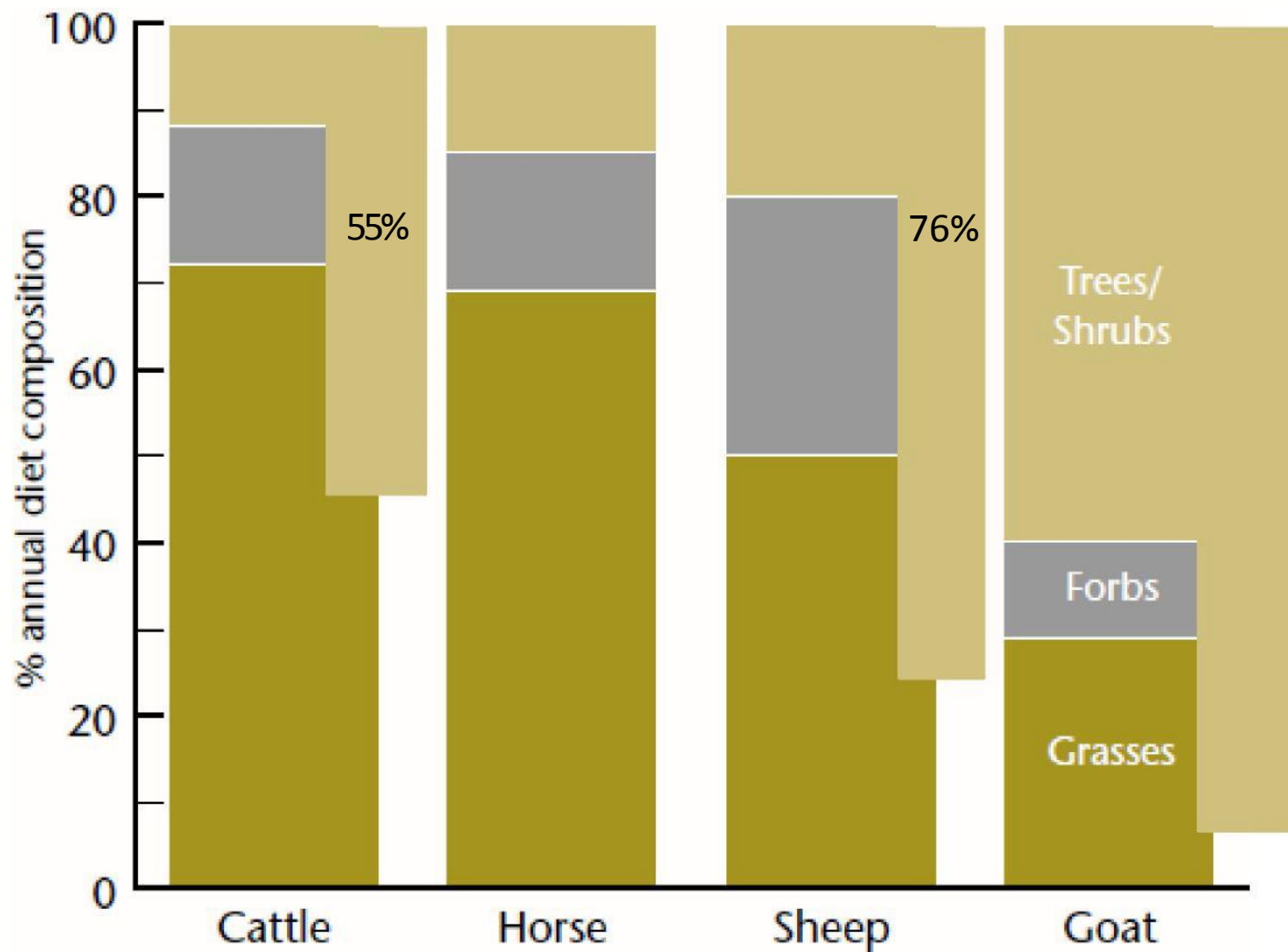
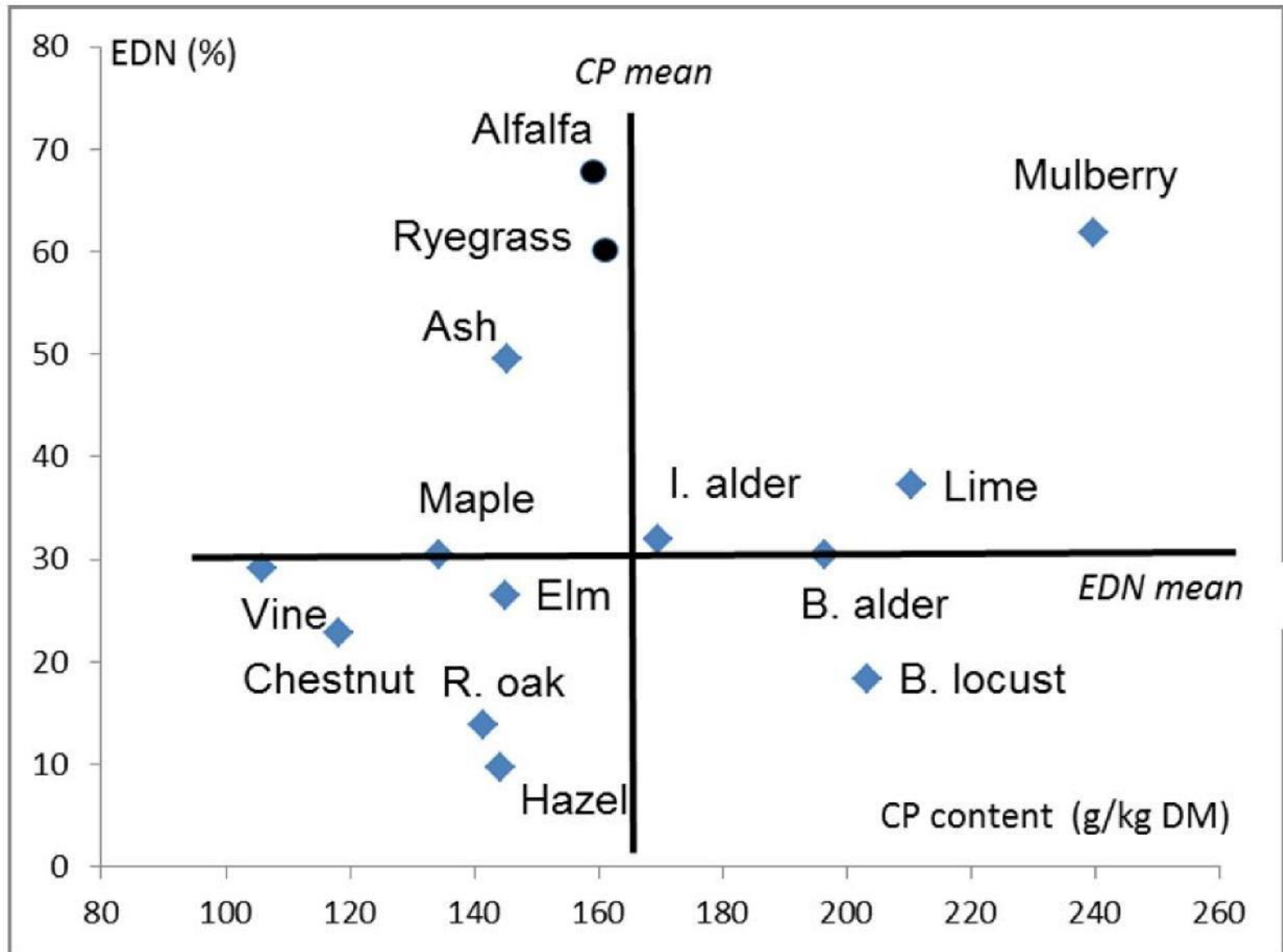




Figure 2. Relationship between effective degradability of nitrogen (EDN, %) and nitrogen concentration (CP, g/kg DM) in leaves of woody species during summer. (Emile et al., 2016)





Trace elements are higher in dried fodder compared to fresh

Sample Reference		A GLUTINOSA 240815	S VIMINALIS 240815	F EXCELSIOR FRESH 21 Ash	S CAPREA FRESH210616	U MINOR FRESH 210616	F EXCELSIOR AD 2403	S CAPREA AD 240317	U MINOPR AD 240317
Determinand	Unit	FORAGE	FORAGE	FORAGE	FORAGE	FORAGE	FORAGE	FORAGE	FORAGE
Total Nitrogen DUMAS	% w/w	3.16	2.23	1.78	2.66	2.23	2.21	2.16	2.31
Total Phosphorus	mg/kg	2240	2971	3144	4243	2292	3661	5501	2362
Total Potassium	mg/kg	9051	10364	14065	13942	14722	20015	18977	20884
Total Calcium	mg/kg	13365	18769	12776	10204	10998	15987	14522	16758
Total Magnesium	mg/kg	2481	1764	2235	1930	1889	2681	2682	2798
Total Sulphur	mg/kg	1890	4124	1840	2056	1313	2348	2571	1655
Total Manganese	mg/kg	129	284	25.5	35.5	37.2	31.6	46.3	37.9
Total Copper	mg/kg	11.2	5.5	7.4	7.6	6.5	9.6	10.9	9.3
Total Zinc	mg/kg	53.2	245	18.5	118	31.7	22.9	144	40.1
Total Iron	mg/kg	91.6	73.1	91.2	75.7	138	116	142	258
Total Boron	mg/kg	28.9	36.7	15.7	12.7	19.3	17.5	18.2	26.0



## Palatability

1	Aspen, Willow
2	Ash, Rowan
3	Hazel, Oak
4	Scots pine, Juniper, Holly
5	Birch, Hawthorn
6	Beech
7	Alder

### Notes on the table:

- In lowland woodlands aspen may be in palatability **class 3**.

- Scots pine, juniper and holly** are more preferred in **winter** than summer because they are evergreen, however, young holly shoots, before the leaves have hardened, are also often taken.

**N.B.** There is ongoing debate about whether holly and hawthorn should be higher up the list. They are often seen heavily browsed but this may be only when all other species are either more heavily browsed or are not there at all.



















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<http://blog.phantomforest.com/2012/02/>

<http://www.bbc.com/earth/story/20170123-how-insects-like-bumblebees-do-so-much-with-tiny-brains>









Thanks for listening