

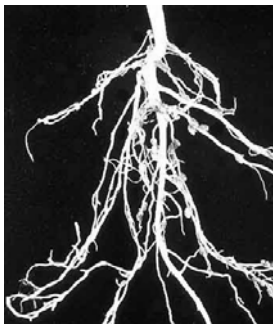
Manage, Utilize and Maintain Legumes in Pastures

Grazing School
Dr. David Lang
August 25, 2010

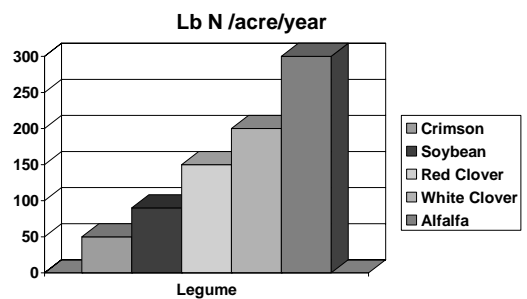
Why Add Legumes ?

- 'Fix' Nitrogen from the Atmosphere
- Increase Protein
- Increase Digestibility
- Provides N to the Grass

Nodules



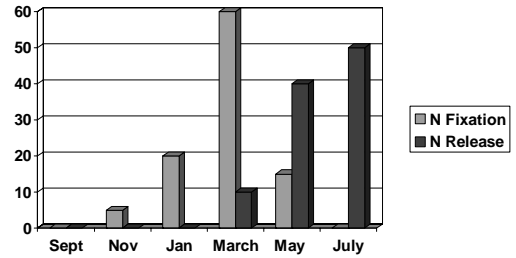
Nitrogen Fixed by Legumes



Release of Nitrogen by Legumes

- N is not directly available
- Nodules must slough off and decay
- Slow release of N over Time

Release of N to Grasses



Pasture Legume Management

- Legumes require higher soil pH
 - Soil Test and add Lime as Needed
- Soil Fertility: High P and K
- Insects can be a problem
- Weed control is more difficult

Legume Weed Management

- Grass Weeds
 - Some grass is desired: reduces Bloat
 - Bloat occurs with most clovers, alfalfa
 - Bloat will not occur with lespedezas, kudzu, soybean, cowpeas due to tannin
 - Use Poloxalene (Bloat Guard) in Water or Salt/Mineral Blocks

Legume Weed Management

- **Grassy Weeds**
 - Poast (sethoxidim) will control grasses, if needed to reduce competition
- **Broadleaf Weeds**
 - Control problem weeds prior to legumes
 - Horsenettle, Dogfennel, etc. with Grazon, Banvel, 2,4D. Note: these Kill legumes
 - Butyrac/Butoxone is 2,4-DB and can be applied to alfalfa to control seedling broadleaf weeds
 - Alfalfa has several herbicide options

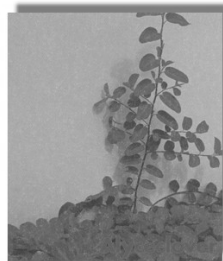
Legume Establishment

- **Summer legumes**
 - **Annual Lespedeza and Alyceclover**
 - Broadcast or drill in March
 - Clip or graze closely
 - Can be sown into ryegrass/small grains
 - **Sericea Lespedeza and Alfalfa**
 - Plant in fall (August/September)
 - Prepared seedbed or no-till

Summer Legumes

- Alyceclover
- Lespedeza
 - Annual Kobe
 - Sericea
- Kudzu
- Soybean
- Cowpeas
- Lablab
- Alfalfa (has early spring growth)

Alyceclover *Alysicarpus vaginalis*



Summer annual

Annual Lespedeza

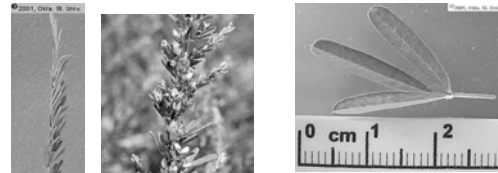
Kummerrowia stipulacea

Summer annual

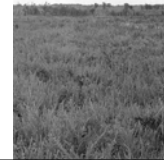


Sericea Lespedeza

Lespedeza cuneata



Perennial



Sericea Lespedeza

- Perennial; also know as Japanese clover
- Contains high tannin levels
- Low tannin varieties: AuLotan and AuDonnelly from Auburn University,
- AuGrazer
- Avoid High Tannin Varieties: Serala, Interstate
- Parasite Control: Goats/Sheep



Kudzu

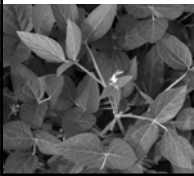
Pueraria montana
var. *lobata*



Perennial (noxious weed)



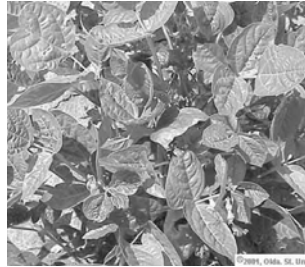
Soybean
Glycine max



Tyrone
Forage
Soybean

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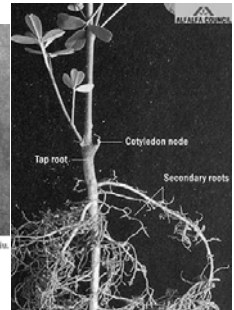
Cowpea
Vigna unguiculata



Lablab
Lablab purpureus



Alfalfa
Medicago sativa

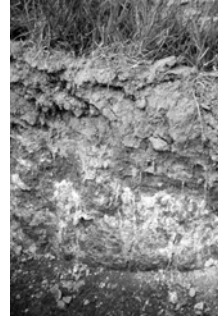


Alfalfa

- Requires a deep, well drained soil
- Soil pH of 6.5-7+ and High P and K levels
- Expensive to Control Insects: Leafhoppers, weevils, blister beetles
- Has potential on 10-20 % of MS' soil
- Limited by fragipans, poor drainage, and expense of growing alfalfa
- Roundup Ready in 2011?



What is a Fragipan ?



Winter Legumes

- Plant in Fall
 - September to November
- Annuals:
 - Crimson, Arrowleaf, Ball, Sub, Berseem Clovers
 - Plant with ryegrass/small grains
 - Overseed into summer pasture

Annual Clovers

- True clovers are *Trifolium* species
- All are winter active/cool season
- Yield is low 2-3 tons/acre
- They add protein to the diet and ..
- Nitrogen to the soil, after they decay
- Mature from March to June
- Plant in Fall (August to November)

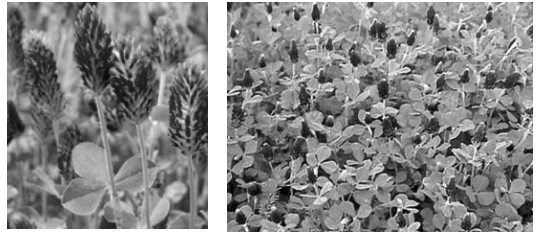
Arrowleaf clover

Trifolium vesiculosum



Crimson clover

Trifolium incarnatum



Subterraneum clover

Trifolium subterraneum



Berseem clover

Trifolium alexandrinum



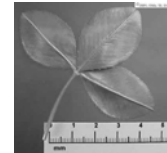
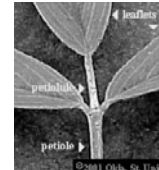
Ball clover

Trifolium nigrescens



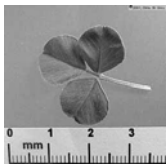
Mis-named “clovers”

- Burclover is an annual medic
- Sweetclover is a Melilotus
- Leaves are pinnate
- True clovers have palmate leaves



Burr medic (Burr clover)

Medicago polymorpha



Winter annual



Can have
black spot
in leaf

Sweet clover

Melilotus officinalis and *M. alba*

Biennial

Toxin:

Coumarin

Bleeding



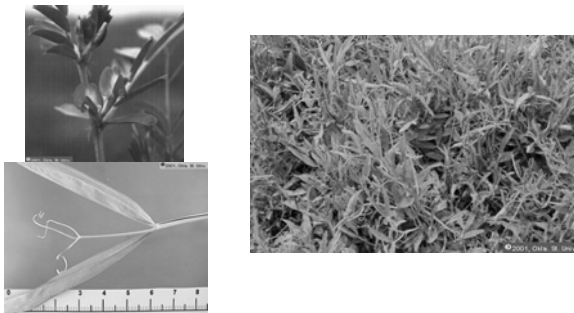
Other Winter Annual Legumes

- Field pea (Common green peas)
- Caleypea (Roughpea or singletary pea)
- Hairy Vetch

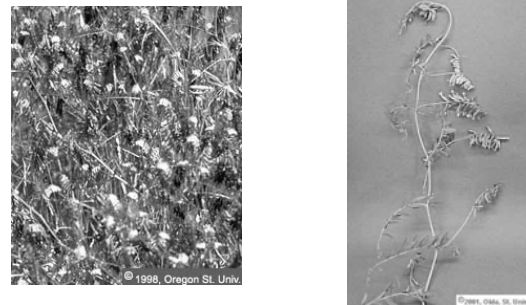
Field Pea *Pisum sativa*



Caleypea (Roughpea or singletary pea) *Lathyrus hirsutus*



Hairy Vetch *Vicia villosa*



Winter Legumes

- **Plant in Fall**
 - September to November
- **Perennials:**
 - White clover and red clover
 - Plant into permanent grass pastures
 - Graze or clip closely
 - Overseed or drill shallow

Perennial clovers

- **Red Clover**
 - Short lived
 - Tall growing
 - Grows well with Johnsongrass and Tall fescue
 - Will re-seed if allowed to mature

Red clover *Trifolium pratense*



Perennial clovers

- **White clover**
 - Similar in appearance to Ball clover
 - Short lived 1-2 years
 - Good reseeded
 - Numerous stolons
 - Grows well with Dallisgrass, Tall Fescue
 - Can maintain some summer growth if “cool” and moist

White clover

