



Updates on sunn hemp management in Florida

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Outline

- Introduction
- Sunn hemp – Cover Crop
 - Cultivars/Entries
 - N fixation and release
 - Soil nematode effects
- Sunn hemp – Forage
 - Mixtures
 - Alkaloids effects on forage quality

Introduction

- Sunn hemp (*Crotalaria juncea*) is a tall herbaceous annual plant widely grown in the tropics, primarily as cover crop



Introduction

- There is a growing interest in cultivating sunn hemp as a cover crop in vegetable and row crop areas in Florida
- Producers would like to know the potential of using sunn hemp as a forage for livestock
- However, there is limited information on the characteristics of different sunn hemp cultivars and the feasibility of using sunn hemp as a forage

Introduction

- The genus *Crotalaria* includes some species known to be toxic to livestock
- The toxic compound pyrrolizidine alkaloid is primarily found in *Crotalaria* seeds
- According to Mosjidis et al. (2012), sunn hemp is a valuable source of forage without toxic effects to animals
- However, seeds should not be part of the animal diet

Sunn hemp – Cultivar/Entries

Cultivar	Harvesting time		Flowering Time
	60 d	Flowering	
	lb DM / acre		days
AU Golden	1,790	3,500	83
Blue Leaf	1,300	13,000	174
Tropic Sun	3,000	13,500	159
Crescent Sun (Ubon)	1,700	4,450	92

Sunn hemp – Cultivar/Entries



Sunn hemp – Cultivar/Entries

Entry	Biomass (lb DM/acre)	Flowering (days after seeding)
Crescent Sun (Ubon)	2,450 b	72 b
UF Selection	3,100 a	91 a



Sunn hemp – Cultivar/Entries

Ploidy mutation



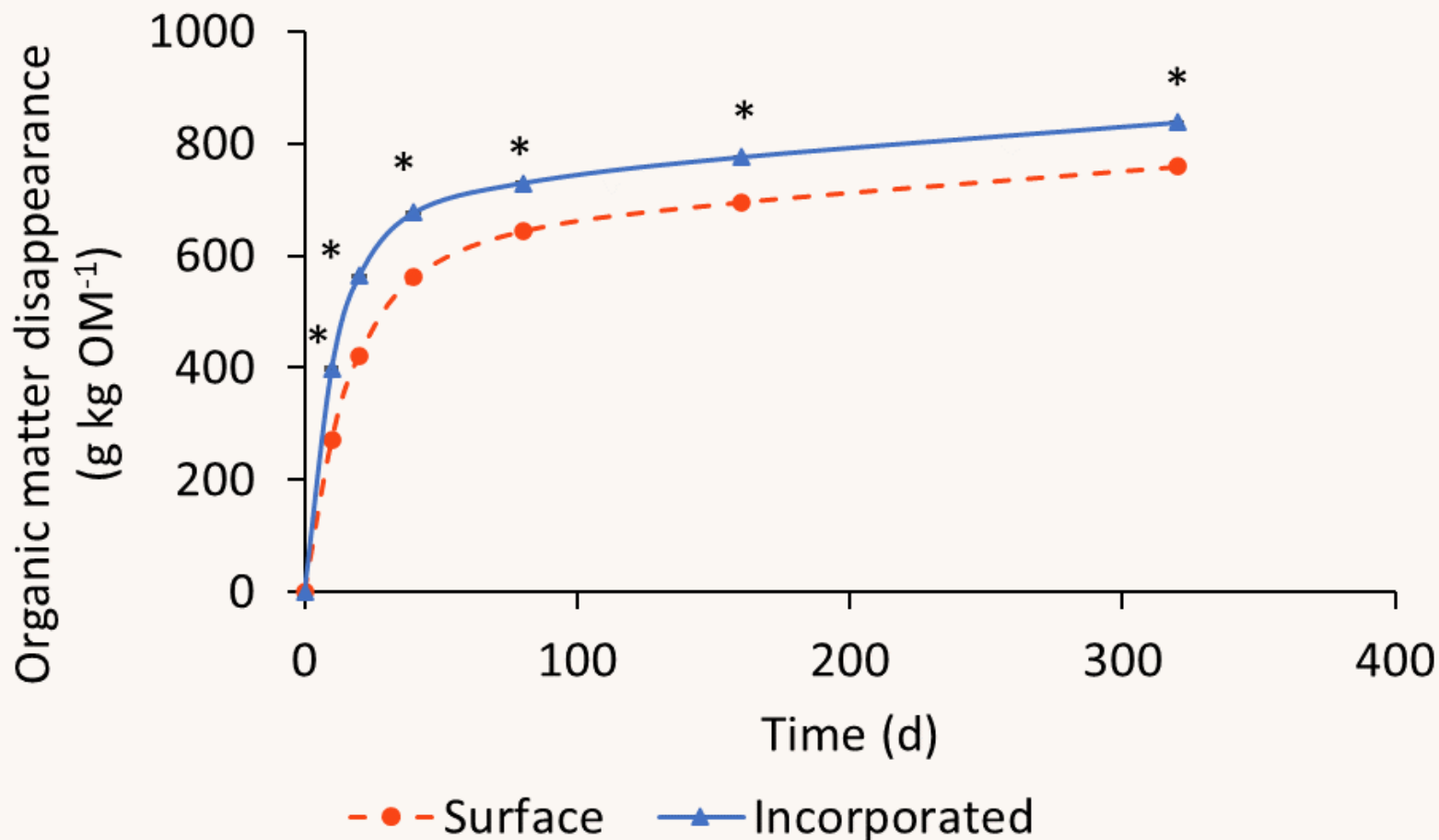
Sunn hemp - N fixation and Release

Cultivar/Entry	N fixation (lb N/acre)	
	Ona	Marianna
AU Golden	52b	
Blue Leaf	56b	22b
Tropic Sun	72a	
Crescent Sunn (Ubon)	47b	36a

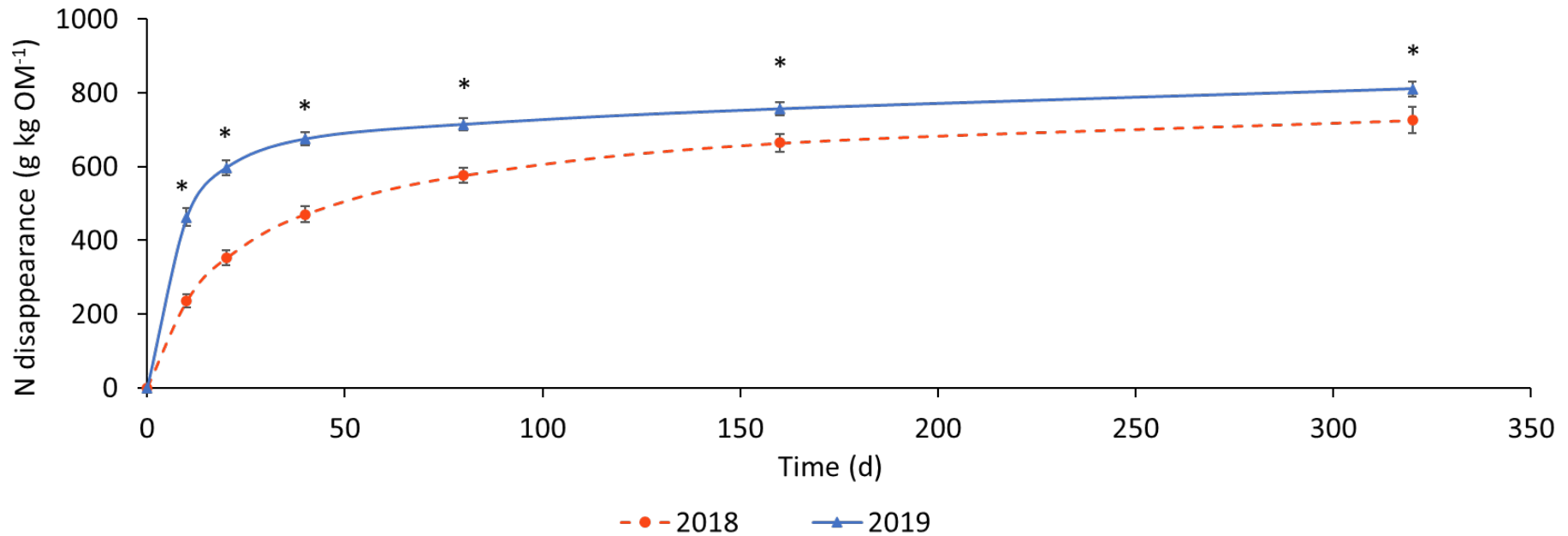
Sunn hemp - N fixation and Release



Sunn hemp - N fixation and Release



Sunn hemp - N fixation and Release



Sunn hemp – Soil Nematode

Cultivar	Decrease in Nematode Population (Meloidogyne spp.)
	(%)
AU Golden	44b
Blue Leaf	73a
Tropic Sun	83a
Crescent Sun (Ubon)	32b

Sunn hemp – Soil Nematode



Sunn hemp – Soil Nematode

Treatment	Pratylenchus	Tylenchulus	Total Pest
	Nematodes /200 ml		
Crescent Sun (Ubon)	3a	16a	20a
Control	5a	14a	27a

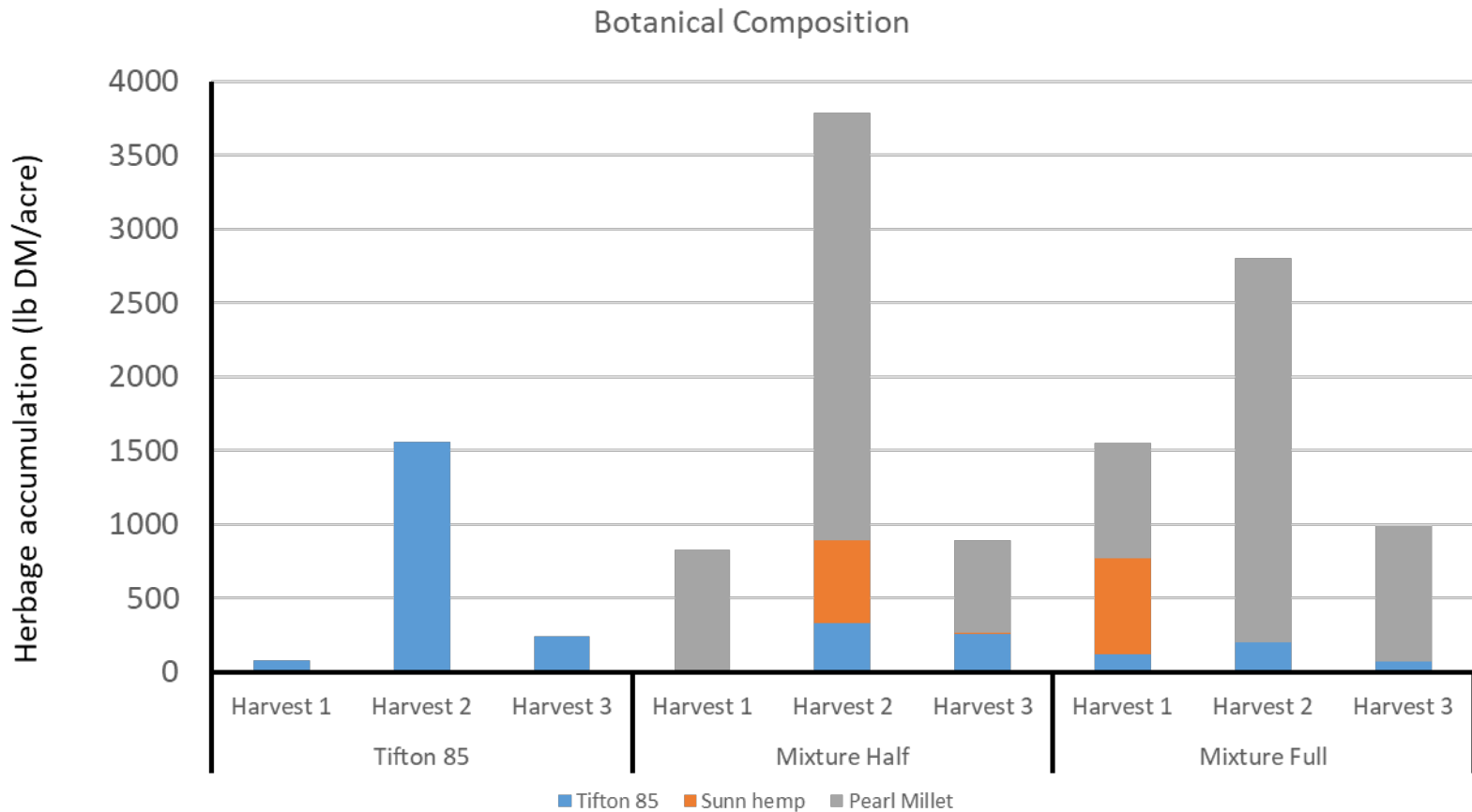
Sunn hemp - Forage



Sunn hemp - Mixtures

- Treatments:
 - Tifton 85
 - Tifton 85 + sunn hemp + pearl millet (Half seeding rate)
 - Tifton 85 + sunn hemp + pearl millet (Full seeding rate)
- Seeding rate:
 - Sunn hemp – 25 lb/acre
 - Pearl millet – 25 lb/acre
- Seeded in July and harvested every 6 weeks

Sunn hemp - Mixtures



Sunn hemp - Mixtures

Tifton 85 – PM – SH at Full Seeding Rate



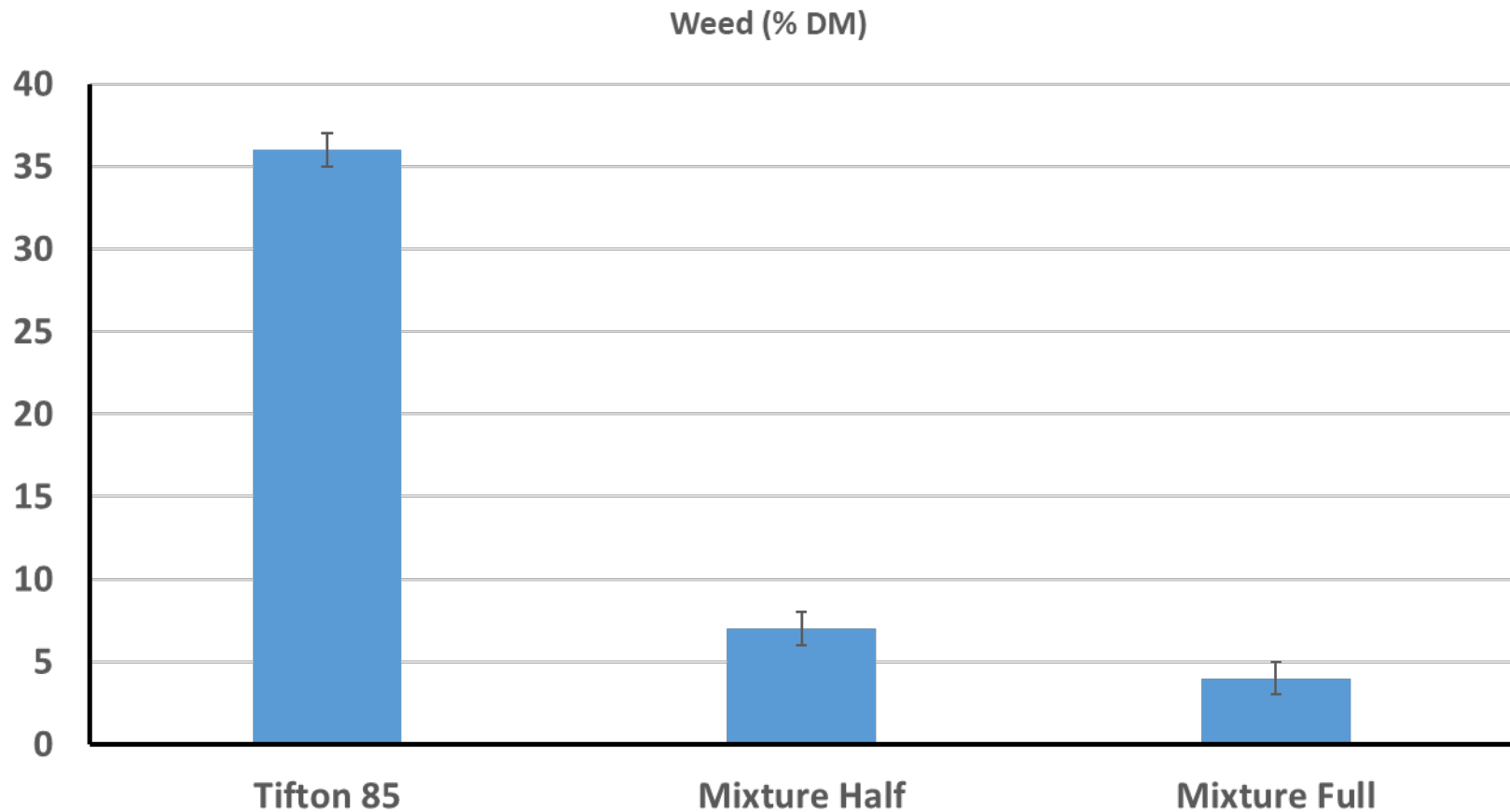
T-85 + PM + SH (half rate)



T-85 Alone – 6 wk Postplant

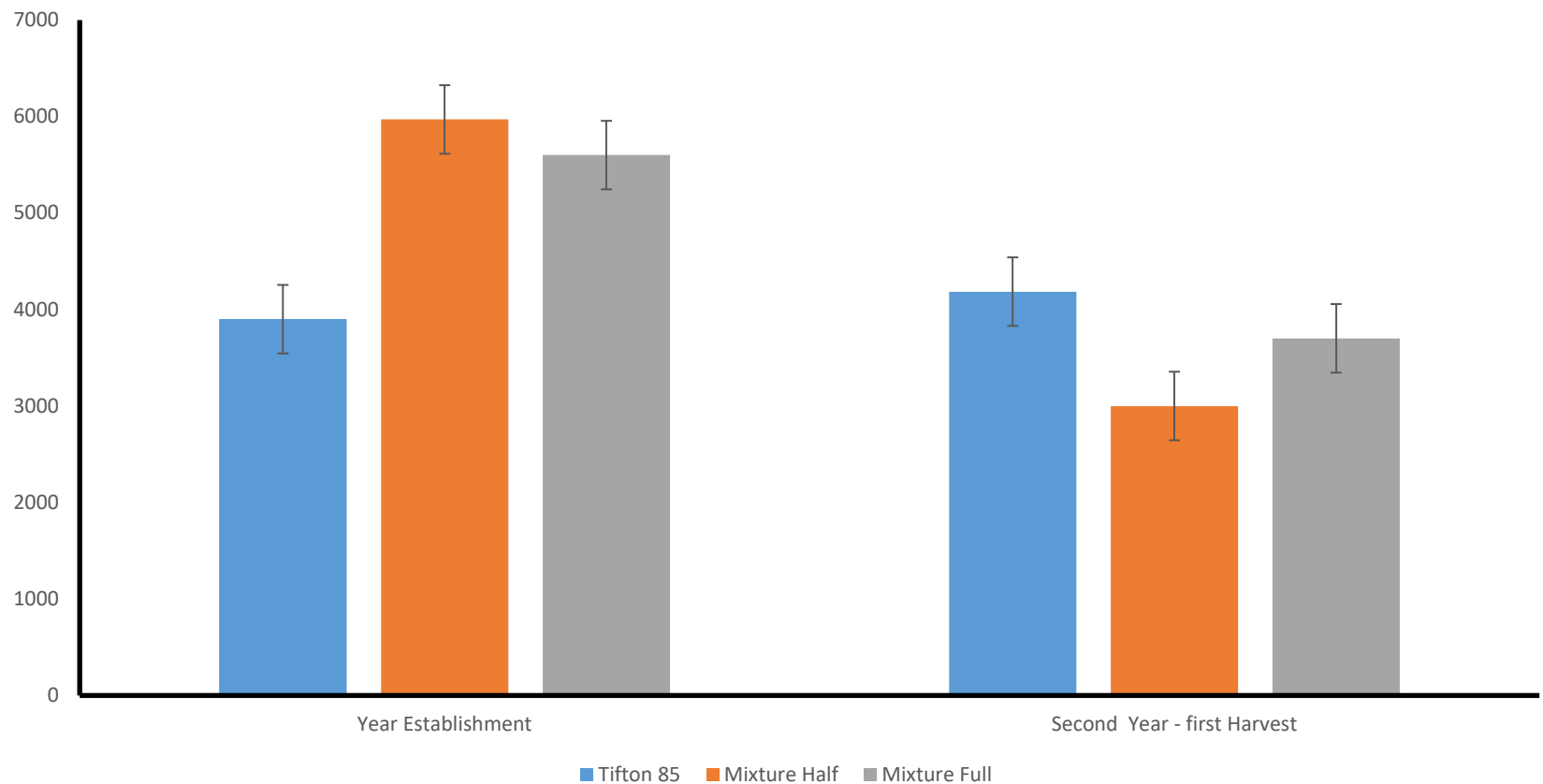


Sunn hemp - Mixtures

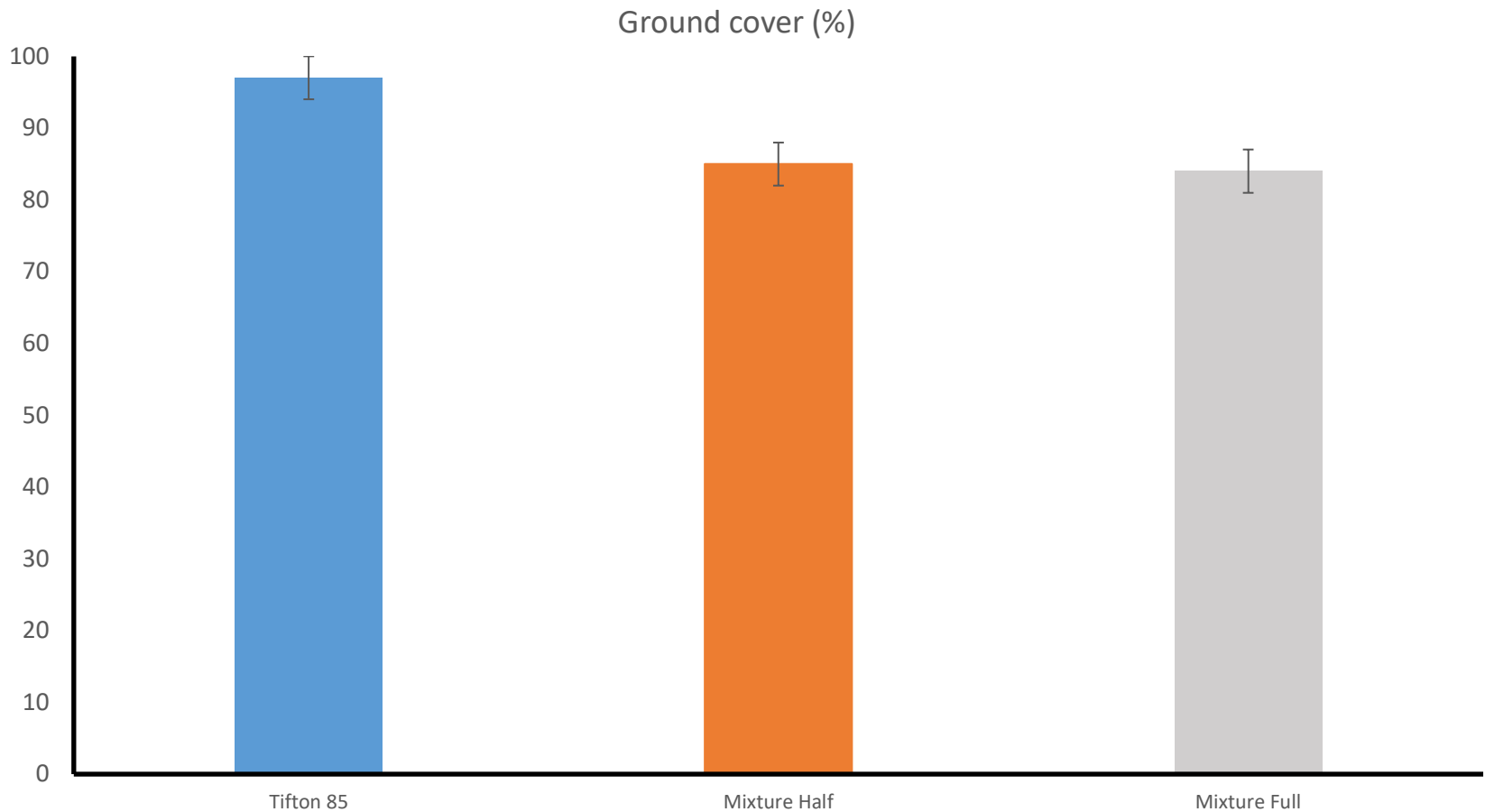


Sunn hemp - Mixtures

Herbage accumulation (lb DM/acre)



Sunn hemp - Mixtures



Sunn hemp - Alkaloids



Sunn hemp - Forage

Weeks after seeding	CP (%)	IVTD (%)
4	31.6a	72a
5	22.3b	69a
6	14.3c	61b
7	12.6d	59c
SE	1	3

Sunn hemp - Alkaloids

Treatment	ADG (lb/d)	Forage intake (% BW)	Total Intake (% BW)	DMD (%)
Sunn hemp	1.8b	1.0b	2.3b	68a
Stargrass	2.2a	1.2a	2.5a	62b

Sunn hemp - Alkaloids

Pyrrrolizidine Alkaloids (PA)

Treatment	PA ($\mu\text{g/g}$)	PA Diet (g/d)	PA Feces ($\mu\text{g/g}$)
Sunn hemp	58	2.5	0
Stargrass	0	0	0
Sunn hemp Seeds	2960	-	-

Sunn hemp - Alkaloids

Greenhouse gas production

Treatment	Gas Production (mL/g)	Methane (mL/g)	Gas production/IVTD	Methane/IVTD
Sunn hemp	140 a	9.3a	293a	18 a
Sunn hemp/Stargrass	108 b	7.0a	265a	17 a
Stargrass	108 b	7.0a	260a	17 a

Thank you

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