Evaluating DuraCor in Florida Pasture Weed Management

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Introduction

- Tropical soda apple (*Solanum viarum*) and dogfennel (*Eupatorium capillifolium*) are two of the most problematic weeds for Florida ranchers, with dogfennel being encountered in high numbers and usually with the presence of TSA.
- The herbicide aminopyralid provides excellent tropical soda apple (TSA) control, but provides little to no dogfennel control(Sellers and Ferrell 2008).
- Control of dogfennel in Florida has been optimized by tank-mixing aminopyralid with either 2,4-D; WeedMaster (2,4-D & dicamba) or PastureGard HL (triclopyr & fluroxypyr) (Sellers et al. 2009, Teló et al. 2020).
- DuraCor is a premix of florpyrauxifen-benzyl & aminopyralid has been introduced as a new resource for weed control in rangeland and pastures.
- florpyrauxifen-benzyl is a relatively new synthetic auxin herbicide that has recently been approved for use in pastures and rangeland (Teló et al. 2020)
- Little research has been conducted to determine if this herbicide combination is effective to control Florida pasture weeds and if tank-mix partners are needed for optimum weed control.

Objective

- The objective of this research was to evaluate the efficacy of DuraCor (florpyrauxifen-benzyl & aminopyralid) in addition to other common herbicides for the control of tropical soda apple and dogfennel.

Materials and Methods

- Separate field experiments were conducted to evaluate weed control at Limestone (Table 1) and Lake Wales (Table 2), FL.
- At Limestone dogfennel was approximately 12" tall and at Lake Wales dogfennel was 35" tall and TSA was at 16" tall at the time of application.
- A randomized complete block design with 4 replications was utilized for both locations using 20 x 50 feet plots.
- Treatments were applied using an air-pressurized all-terrain vehicle sprayer calibrated to deliver 30 GPA. Methylated seed oil (MSO) and a non-ionic surfactant (NIS) were used as adjuvants.
- Herbicide efficacy was evaluated using visual estimations of control at 30, 60, and 120 days after treatment (DAT) at Limestone and at 30 DAT at Lake Wales; frost precluded any further evaluations at the Lake Wales site in 2020.
- Data were analyzed using ANOVA, and means were separated using Tukey's HSD test $P \leq 0.05$.

Table 1. Visual estimation of dogfennel injury at 30, 60, 120 days after treatment (DAT) near Limestone, FL in 2020[a].

Trade name	Common name	Rate (fl oz acre^{-1})	30 DAT[b]	60 DAT	120 DAT
			----------(%)----------		
DuraCor MSO Concentrate	FPB & AMP MSO	16 1% v/v	48 de	45 cd	41 bc
DuraCor + PastureGard HL MSO Concentrate	FPB & AMP + TRI & FLU MSO	16+8 1% v/v	84 a	94 ab	97 a
DuraCor + Weedmaster MSO Concentrate	FPB & AMP + DIC & 2,4-D MSO	16+48 1% v/v	84 a	96 a	98 a
DuraCor + 2,4-D Amine MSO Concentrate	FPB & AMP + 2,4-D MSO	16+48 1% v/v	81 ab	89 ab	95 a
DuraCor Activator 90	FPB & AMP NIS	16 0.25% v/v	35 e	20 d	13 c
DuraCor + PastureGard HL Activator 90	FPB & AMP + TRI & FLU NIS	16+8 0.25% v/v	69 bc	69 bc	78 ab
DuraCor + Weedmaster Activator 90	FPB & AMP + DIC & 2,4-D NIS	16+48 0.25% v/v	66 c	71 abc	91 a
DuraCor + 2,4-D Amine Activator 90	FPB & AMP + 2,4-D NIS	16+48 0.25% v/v	63 cd	89 ab	91 a
GrazonNext HL + PastureGard HL Activator 90	2,4-D & AMP + TRI & FLU NIS	24+8 0.25% v/v	78 abc	89 ab	96 a

[a]Abbreviations: FPB, florpyrauxifen-benzyl ; AMP, aminopyralid; TRI, triclopyr; FLU, fluroxypyr; DIC, dicamba; MSO, methylated seed oil; NIS, non-ionic surfactant
[b]Means followed by the same letter are not significantly different according to Tukey's HSD test $P \leq 0.05$.

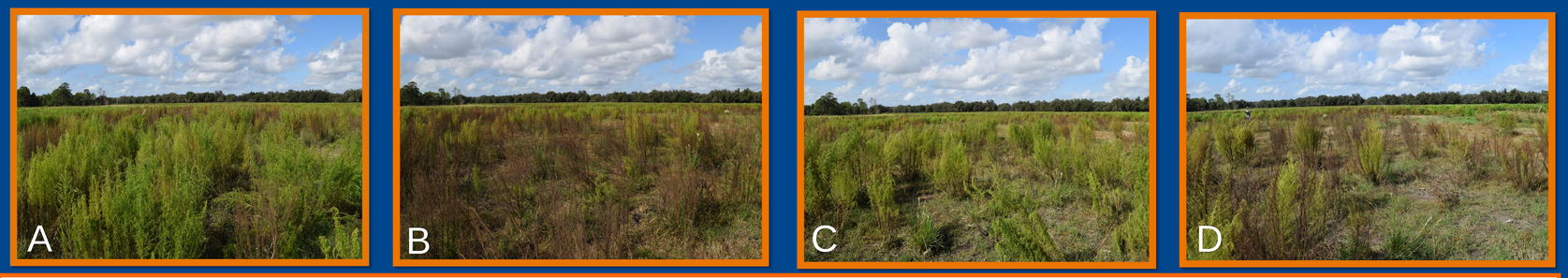

Figure 1. Visual response of dogfennel at 30 DAT when treated with DuraCor, MSO (A); DuraCor + WeedMaster, MSO (B); DuraCor, NIS (C) DuraCor + WeedMaster, NIS (D);

Results and Discussion

Limestone

- At 30 DAT, DuraCor alone provided ≤48% control regardless of adjuvant type.
- The addition of tank-mix partners generally increased dogfennel control with tank-mixes containing PastureGard HL and WeedMaster.
- At 120 DAT, DuraCor alone provided ≤41% control regardless of adjuvant.
- The addition of tank-mix partners generally increased dogfennel control, and resulted in at least 78% control.
- MSO provided better initial dogfennel control by 30 DAT, though there was no adjuvant effect by 60 DAT.
- All tank-mix treatments with florpyrauxifen-benzyl & aminopyralid were similar to the standard of 2,4-D & aminopyralid + triclopyr & fluroxypyr.

Lake Wales

- Evaluation at 30 DAT indicated DuraCor alone provided ≤19% dogfennel control and at least 85% TSA control regardless of adjuvant.
- The addition of PastureGard HL increased dogfennel control compared to DuraCor alone, but these tank-mix treatments did not exceed 51% control regardless of adjuvant type.
- The tank-mixes of WeedMaster and 2,4-D provided among the highest levels of dogfennel control when MSO was utilized as the adjuvant; however, dogfennel control with the WeedMaster tank-mix with NIS as the adjuvant was similar.
- All tank-mix treatments, with the exception of PastureGard HL, provided similar levels of control as the standard GrazonNext HL+ PastureGard HL.
- All tank-mix treatments, with 2,4-D, provided at least 85% TSA control 30 DAT, and was comparable to the standard treatment.
- The tank-mix treatment with 2,4-D using NIS as the adjuvant had the lowest level of TSA control (53%).

Conclusion

- The data indicates that tropical soda apple is susceptible to DuraCor, but dogfennel will require additional tank-mix partners for optimum control.

Table 2. Visual estimation of dogfennel and tropical soda apple (TSA) injury at 30 days after treatment (DAT) near Lake Wales, FL in 2020[a].

Trade name	Common name	Rate (g ai ha^{-1})	30 DAT[b] dogfennel	30 DAT[b] TSA
			----------(%)----------	
DuraCor MSO Concentrate	FPB & AMP MSO	16 1% v/v	19 e	88 ab
DuraCor + PastureGard HL MSO Concentrate	FPB & AMP + TRI & FLU MSO	16+8 1% v/v	47 d	97 a
DuraCor + Weedmaster MSO Concentrate	FPB & AMP + DIC & 2,4-D MSO	16+48 1% v/v	89 a	97 a
DuraCor + 2,4-D Amine MSO Concentrate	FPB & AMP + 2,4-D MSO	16+48 1% v/v	80 ab	57 bc
DuraCor Activator 90	FPB & AMP NIS	16 0.25% v/v	16 e	85 ab
DuraCor + PastureGard HL Activator 90	FPB & AMP + TRI & FLU NIS	16+8 0.25% v/v	51 cd	90 a
DuraCor + Weedmaster Activator 90	FPB & AMP + DIC & 2,4-D NIS	16+48 0.25% v/v	71 abc	94 a
DuraCor + 2,4-D Amine Activator 90	FPB & AMP + 2,4-D NIS	16+48 0.25% v/v	67 bcd	53 c
GrazonNext HL + PastureGard HL Activator 90	2,4-D & AMP + TRI & FLU NIS	24+8 0.25% v/v	82 ab	85 ab

[a]Abbreviations: FPB, florpyrauxifen-benzyl ; AMP, aminopyralid; TRI, triclopyr; FLU, fluroxypyr; DIC, dicamba; MSO, methylated seed oil; NIS, non-ionic surfactant
[b]Means followed by the same letter are not significantly different according to Tukey's HSD test $P \leq 0.05$.

References

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