

Supplementary Information

Table S1: Crop Coefficients for different stages of peanut.

Stages	Period	Crop Coefficient (K_c)
Pre -bloom stage	5 to 10 days after planting	0.45
Crop development	25 to 40 days after planting	0.75
Mid-season	40 to 100 days after planting	1.025
Late-season	100 to 130 days after planting	0.75

Table S2: Peanut yield for the major counties in Georgia (pound per acre).

Crop-year	Seminole	Irwin	Early	Miller	Mitchell	Decatur	Worth	Colquitt
Peanut- 2007	3825	2945	3000	3705	3225	3635	3090	2970
Peanut- 2008	4405	3240	3880	4115	3765	4045	2995	3565
Peanut -2009	4460	3025	3965	4785	4040	4530	3390	3675
Peanut -2010	4534	3614	3084	4448	4240	4493	3461	3843
Peanut -2011	4797	2932	3880	4647	4153	5053	3359	3880
Peanut -2012	5656	4273	5192	5398	4661	4950	4288	4676
Peanut -2013	5123	4329	4949	5198	5046	5113	4473	5113
Peanut -2014	5491	3747	4664	5068	4716	5473	4076	4551
Peanut -2015	4303	4679	4382	4978	5093	5284	4093	4349
Peanut -2016	4673	3826	4381	4892	4469	4896	3328	4200
Peanut -2017	5112	4416	4686	4947	4856	5127	3870	4445

Table S3: Water solubility of pesticides.

Pesticide	Water solubility
Azoxystrobin	6.7mg/l
Flutolanil	8.01 mg/l
Chlorothalonil	10mg/100l
Cyproconazole	93mg/l
Difenoconazole	15mg/l
Fludioxonil	1.8mg/l
Flutolanil	8.01mg/l
Mancozeb	6.2mg/l
Propiconazole	100mg/l
Tebuconazole	0.032g/l
Thiophanate methyl	26.6mg/l
2,4-D	45000mg/l
2,4-DB	46mg/l
Acifluorfen	62g/100ml
Bentazone	7712mg/l
Clethodim	5450mg/l
Ethalfuralin	0.01mg/l

Paraquat	70g/100ml
Pendimethalin	0.275mg/l
Metolachlor	480mg/l
Sethoxydim	4700mg/l
Trifluralin	0.0024g/100ml
Diquat	100µg/ml
Cyfluthrin	2 µg/ml
Diflubenzuron	0.08mg/l
Esfenvalerate	0.001mg/l
Imidacloprid	0.61g/l
Zeta Cypermethrin	0.05mg/l
Phorate	50mg/l

Table S4: Pesticides susceptible to leaching and runoff.

Leaching	Runoff
Azoxystrobin	Flutolanil
ciproconazole	Chlorothalonil (deposition)
Propiconazole	Fludioxonil
2,4-D	Flutolanil
Acifluorfen	Propiconazole
Clethodim (degradation by sunlight and microbes)	Tebuconazole
Metolachlor	Thiophanate methyl
	2,4-DB
	Acifluorfen
	Bentazone
	Ethalfuralin (erosion)
	Paraquat
	Pendimethalin
	Metolachlor
	Sethoxydim (neither leach nor runoff, photodegradation)
	Trifluralin (runoff, volatilization)
	Acephate (water soluble)
	Bifenthrin
	Chlorpyrifos
	Cyfluthrin
	Diflubenzuron (eroded soil with runoff)
	Esfenvalerate
	Imidachloprid
	Zeta Cypermethrin
	Phorate

Figure S1: Crop-specific (peanut) characterization factor from Boulay et al. 2019.

