Table S1: Phenotypic and Genotypic Characterization of *Aspergillus flavus* Isolates in Maize Ears from Regions I and IV during the 2012/13 to 2020/21 Seasons.

Region[a]	Growing Season	Province	City	Isolates	Aflatoxin[c]	Sclerotium[d]	MAT
1	2012/2013	Sgo del Estero	Sachayoj	AS04001*	atox	NP	1-1
				40(1)	atox	NP	1-1
				102(2)	atox	NP	1-1
				AS03802*	atox	NP	1-1
				AS10202*	atox	NP	1-1
			La Abrita	AS05322*	tox	L	1-1
				AS04322*	atox	NP	1-1
				AS00019*	atox	NP	1-2
	2013/2014			AS04822*	tox	L	1-1
				AS04722*	tox	L	1-1
				AS11623*	tox	L	1-2
				AS04922*	tox	NP	1-1
	2014/2015	Tucumán	Leales	AS03145*	atox	NP	1-1
	2015/2016	Sgo del Estero	Quimilí	ASQU16**	atox	L	1-2
	2016/2017	Tucumán	Leales	ASLE1**	atox	L	1-1
		Sgo del Estero	Bandera	ASBA11**	atox	L	1-1
			Sgo Del Estero	ASSE2**	atox	L	1-1
				ASSE6**	atox	NP	1-1
	2017-2018		Otumpa	12	ND	ND	1-1
				4	ND	NP	1-2
				12B	ND	NP	1-1
				16	ND	S	1-2
				8	ND	S	1-2
				16B	ND	S	1-2
				17	ND	S	1-2
4	2012/2013	Córdoba	Pocho	AS10919*	tox	L	1-1
			Cda Luque	AS10516*	tox	L	1-1
				AS11215*	tox	NP	1-1
				AS11415*	tox	NP	1-1
				AS11515*	tox	NP	1-1
				AS10816*	atox	NP	1-1
				120(12)	atox	NP	1-1
				AS12012*	atox	NP	1-1
			Manfredi	AS08208*	tox	L	1-2
				AS07804*	tox	L	1-1
				AS08105*	tox	NP	1-1
				AS08508*	tox	NP	1-2
				AS08608*	tox	NP	1-2
			Jesús María	AS08711*	tox	NP	1-2
				AS08811*	tox	L	1-1
				AS09011*	tox	L	1-2
				AS09311*	tox	NP	1-2
				AS09411*	tox	NP	1-2
				AS09511*	tox	NP	1-2

Region[a]	Growing Season	Province	City	Isolates	Aflatoxin[c]	Sclerotium[d]	MAT
				AS09611*	tox	L	1-1
			Manfredi	AS00001*	atox	NP	1-1
				AS12807*	atox	NP	1-1
			Despeñaderos	AS11108*	atox	NP	1-1
	2013/2014		Altos Fierro	AS03326*	atox	NP	1-1
	2014/2015		Jesús María	57(39)	atox	NP	1-1
				AS05739*	atox	NP	1-1
			Capilla de los Remedios	AS04050*	atox	NP	1-1
	2016/2017		Tulumba	ASVT2**	atox	L	1-1
	2018-2019		Obispo Trejo	124(12)B	ND	S	1-2
				124(3)A	ND	S	1-2
				124(2)B	ND	S	1-2
				124(13)B	ND	S	1-2
				124(12)A	ND	S	1-2
				124(11)1	ND	S	1-2
				124(4)	ND	S	1-2
	2020/2021		Sebastián el Cano	SEC 7210(2)B	ND	ND	1-2
				SEC 7210(2)A	ND	ND	1-2
			Cda Luque	CDL 22.6(1)	ND	ND	1-1
				CDL 22.6(1)A	ND	ND	1-1
				CDL 22.6(2)A	ND	ND	1-1
				CDL 22.6(2)B	ND	ND	1-1
			Rio primero	22.6A	ND	ND	1-1
				22.6B	ND	ND	1-1
			Villa de María de Rio Seco	VRS 22.6(4)A	ND	ND	1-1
				VRS 22.6(6)B	ND	ND	1-1
				VRS 22.6(6)A	ND	ND	1-1
				VRS 22.6(8)B	ND	ND	1-1
				VRS 22.6(7)A	ND	ND	1-1
				VRS 22.6(7)B	ND	ND	1-1
				VRS 22.6(8)A	ND	NP	1-1
				VRS 22.6(4)B	ND	NP	1-1
				VRS 22.6(3)B	ND	NP	1-1
				VRS 22.6(3)A	ND	ND	1-1
				VRS 22.6(1)A	ND	ND	1-1
				VRS 22.6(2)B	ND	ND	1-1
				VRS 22.6(1)B	ND	ND	1-1

[a] I y IV: Maice Growing Regions in Argentina.

[b] Nearest city to the production field.

[c] tox: aflatoxin producer; atox: aflatoxins not detected; ND: not determined.

[d] S and L: produce sclerotia with an average diameter of <400 µm and >400 µm, respectively. NP: isolates did not produce sclerotia under laboratory conditions. ND: not determined.

*Strains with the aflatoxin and sclerotia characteristics described by Camiletti et al.[1]

**Strains with the aflatoxin and sclerotia characteristics described by Barontini et al.[2]

Table S2: Mating type (MAT) Distribution by Vegetative Compatibility Groups (VCG)

Growing Season	strain	VCG	MAT
2012/2013	AS04322	AM1	MAT1-1
2012/2013	AS03802	AM1	MAT1-1
2012/2013	AS12807	AM2	MAT1-1
2012/2013	AS00019	AM3	MAT1-2
2012/2013	AS11108	AM4	MAT1-1
2012/2013	AS04001	AM5	MAT1-1
2012/2013	AS10202	AM5	MAT1-1
2012/2013	AS10816	AM5	MAT1-1
2012/2013	AS12012	AM5	MAT1-1
2012/2013	AS00001	AM6	MAT1-1
2013/2014	AS03326	AM5	MAT1-1
2014/2015	AS03145	AM1	MAT1-1
2014/2015	AS05739	AM1	MAT1-1
2014/2015	AS04050	AM1	MAT1-1
2015/2016	ASQU16	AM2	MAT1-2
2016/2017	ASSE6	AM1	MAT1-1
2016/2017	ASBA11	AM1	MAT1-1
2016/2017	ASLE1	AM1	MAT1-1
2016/2017	ASVT2	AM5	MAT1-1
2016/2017	ASSE2	AM6	MAT1-1