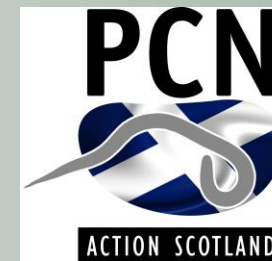


SASA



Current trends in PCN contamination

Jon Pickup

PCN Action Scotland Winter Conference

17th Jan 2023



Scottish Government
Riaghaltas na h-Alba
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soilessentials
precision farming solutions



SPCS Soil testing 2011-22

- ❖ 1.6% of 400 ml samples drawn from fields sampled at the lower rate of 400 ml/ha test positive leading to 4.5% of the land tested being recorded as infested

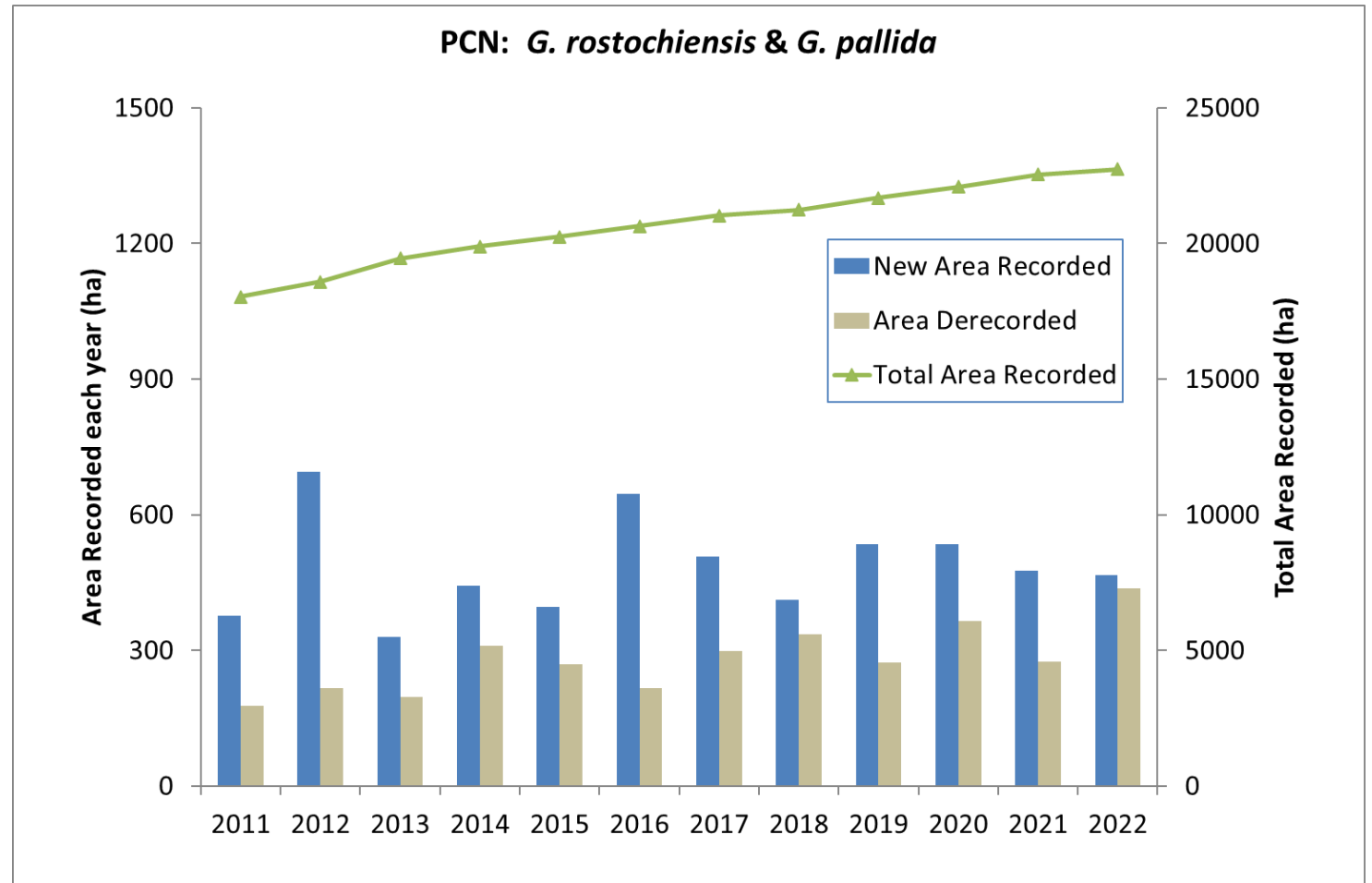
PCN Positives by rate 2011-22

Rate	Positive Samples	Area Positive (Ha)
Lower (400ml/ha)	2701 (1.6%)	8509 (4.5%)
Standard (1500ml/ha)	2352 (8.7%)	2624 (36.1%)
Derecording (1500ml/ha)	2098 (9.8%)	2325 (40.8%)
Total	5053 (2.5%)	11133 (5.7%)

- ❖ For fields sampled at the standard rate of 1500 ml/ha, a sample of 400 ml is typically drawn from each 0.25 ha. 8.7% of such samples test positive leading to 36% of the land tested recorded as infested
- ❖ Most land tested at the standard rate is for derecording purposes and therefore has a history of infestation

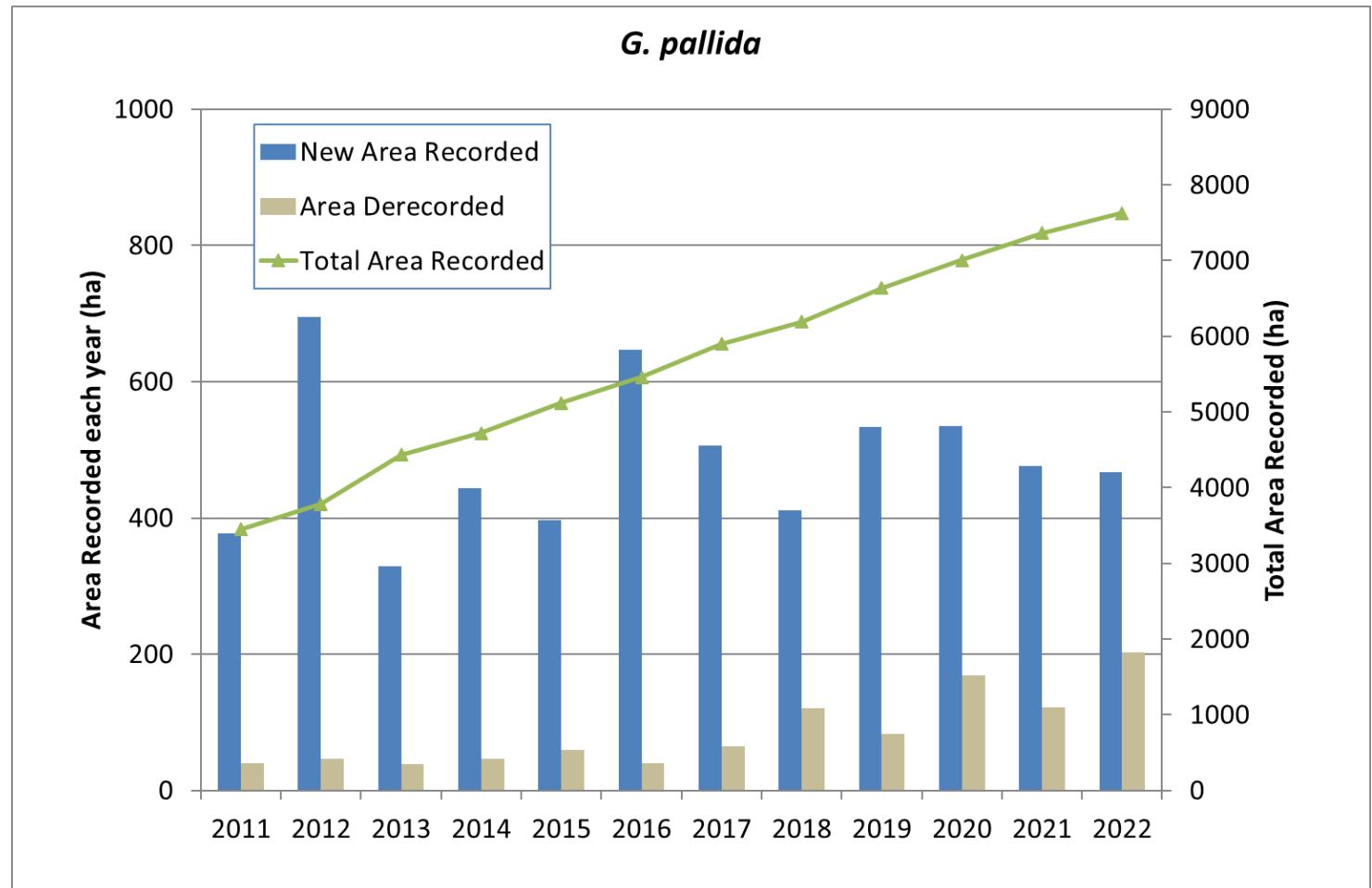
Changes in the incidence of PCN in seed land: 2011-2022

- ❖ In 2010, an estimated 17,486 ha was recorded as infested with PCN
- ❖ By 2022, this area had increased by 30% to 22,746 ha
- ❖ 150,000 ha of land used for potatoes?
- ❖ SG: 15% of Scottish potato land recorded as infested with PCN



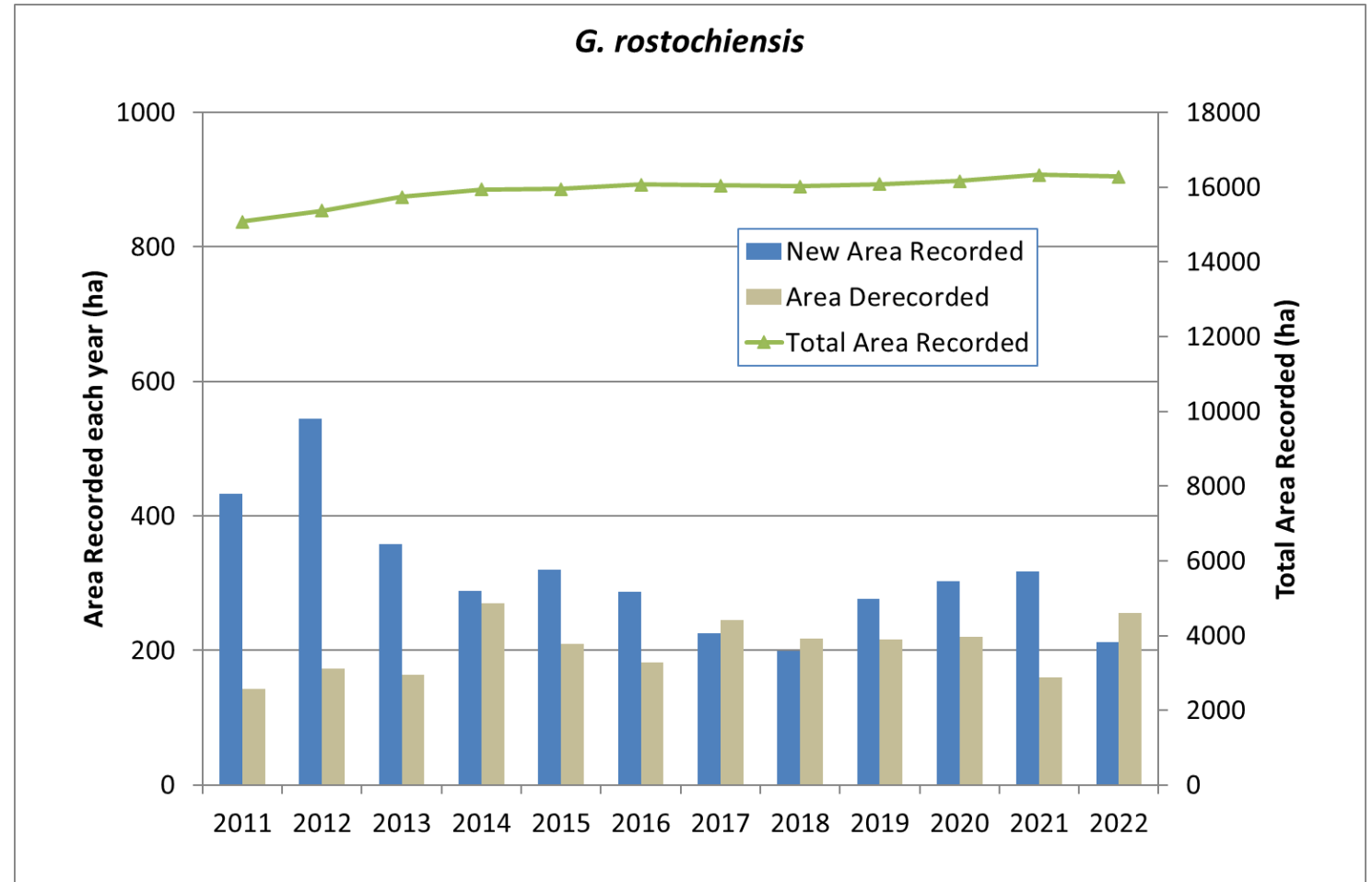
Changes in the incidence of *G. pallida* in seed land: 2011-2022

- ❖ In 2010, an estimated 3,115 ha was recorded as infested with *G. pallida*
- ❖ By 2022, this area had increased by 145% to 7,616 ha



Changes in the incidence of *G. rostochiensis* in seed land: 2011-2022

- ❖ In 2010, an estimated 14,793 ha was recorded as infested with *G. rostochiensis*
- ❖ By 2022, this area had increased by 10% to 16,300 ha

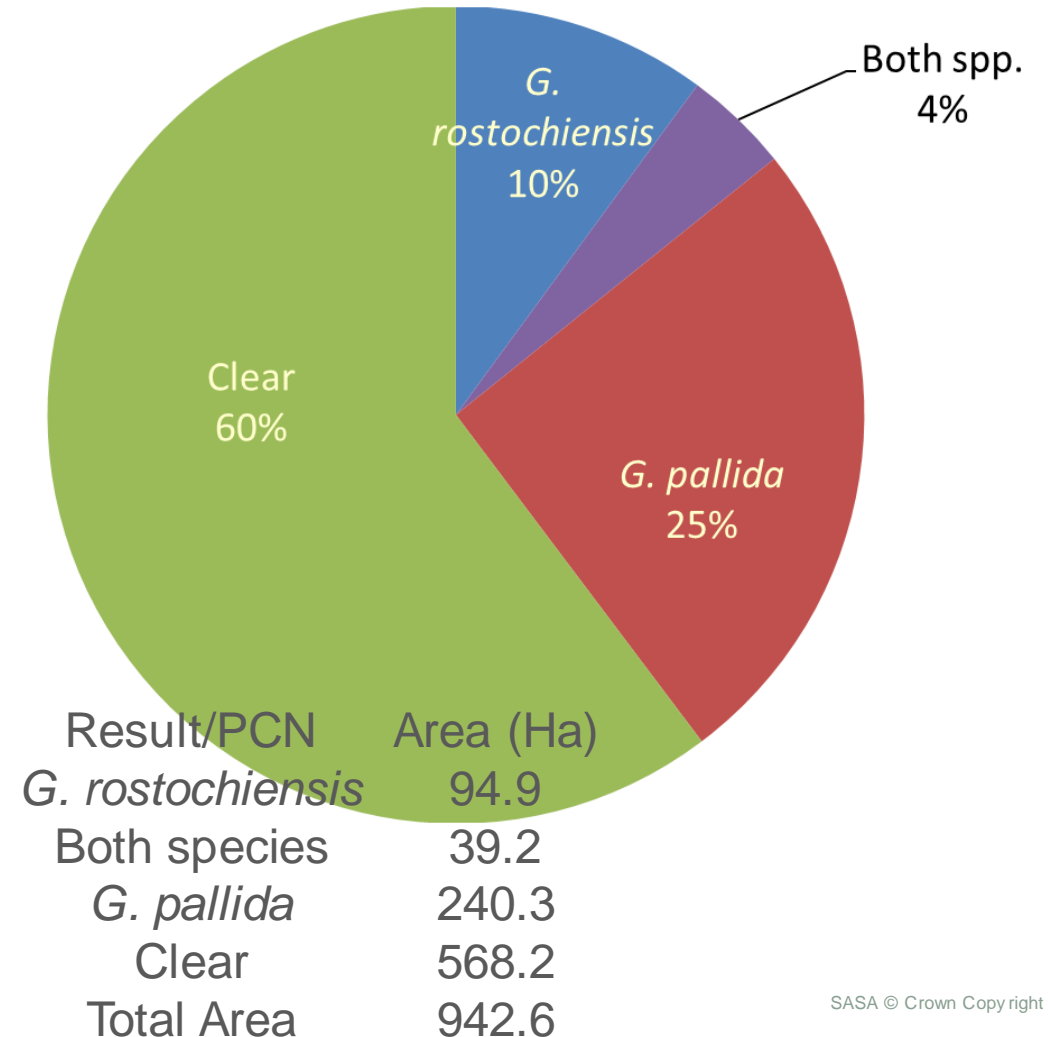


Seed Land: PCN by County 2011-22 (Ranked by PCN Incidence)

County	Area Tested (Ha)	Area with PCN (Ha)	Area with G. pallida (Ha)	Area with G. rostoch (Ha)	Area with PCN (%)	Area with G. pallida (%)	Area with G. rostoch (%)
Angus	60115	6656	4750	2461	11.1%	7.9%	4.1%
Fife	9552	566	259	361	5.9%	2.7%	3.8%
Kincardine	20378	1095	460	732	5.4%	2.3%	3.6%
Perth	31484	1496	731	903	4.8%	2.3%	2.9%
Moray	9109	328	123	253	3.6%	1.4%	2.8%
Kinross	2449	75	62	32	3.0%	2.5%	1.3%
Banff	9488	274	104	184	2.9%	1.1%	1.9%
Others	6392	160	55	105	2.5%	0.9%	1.6%
Aberdeen	26175	320	160	189	1.2%	0.6%	0.7%
Nairn	2366	26	13	18	1.1%	0.5%	0.8%
Berwick	4826	51	35	16	1.1%	0.7%	0.3%
Roxburgh	2800	28	18	28	1.0%	0.6%	1.0%
Ross	10791	54	2	52	0.5%	0.0%	0.5%
Scotland	195923	11128	6771	5335	5.7%	3.5%	2.7%

PCN in Ware Land: 2010 - 2021

- ❖ 2007 EU Directive requirement to survey 0.5% of ware land p.a. after harvest
- ❖ Ware land with known PCN infestation or PCN clearance is excluded from the survey
- ❖ Sampling rate 400cc/ha; units of 4 ha; 4 samples/unit
- ❖ By 2021, an area of 943 ha had been surveyed of c. 80,000 ha of land is used for ware in Scotland (15000 ha p.a. and a rotation of 5+ years)
- ❖ Extrapolation suggests PCN, mostly *G. pallida*, are detectable on c. 32,000 ha of ware land
- ❖ PCN were found in 22% of samples, so using 1 ha sampling units, this 32,000 reduces to 17,300 ha



Ware Land: PCN by County 2010 - 2021

County	Area Tested (Ha)	Area Cler	Clear	<i>G. pallida</i>	<i>G. rostoch</i>
Angus	331.3	156.6	47%	42%	13%
Fife	165.4	117.5	71%	19%	14%
Perth	119.2	80	67%	13%	26%
East Lothian	76	24	32%	58%	16%
Berwick	56	44	79%	7%	14%
Aberdeen	49.9	33.9	68%	24%	24%
Moray	28	28	100%	0%	0%
Roxburgh	28	24	86%	14%	0%
Others	88.8	60.2	68%	32%	5%
Scotland	942.6	568.2	60%	30%	14%

Summary: PCN in Scotland 2022

- 22,750 ha currently recorded as infested is estimated at about 15% of land used for potato production
- 16,300 ha of *G. rostochiensis* infested land increasing by c. 1% p.a.
- 7,600 ha of *G. pallida* infested land is doubling every c.10 years
- Will 15,000 ha be infested with *G. pallida* by 2032?
- Ware survey suggests that c. 40% of 80,000 ha of ware land has PCN (29% *G. pallida*)
- Estimate is that in 2022, PCN is present at detectable levels in c. 55,000 ha, or approximately one third of Scottish potato land
- *G. pallida* is present at detectable levels in c. 30,000 ha, or approximately one fifth of Scottish potato land
- Of the ware infestations, how widespread is economic damage?
- Although there is regional variation: *G. pallida* is widespread in ware land and is increasing at similar rates in seed land across the country
- *PCN will seriously compromise the area of land available for seed potato production unless better practices to manage G. pallida are implemented in the near future*