

*Scottish Seed Potato
Growing Crop Inspections
Review of 2014 Season*



GROWING CROP INSPECTIONS IN SCOTLAND – REVIEW OF 2014 SEASON

SUMMARY

- There was a 2% increase in the number of crops entered for inspection and a 4.5% increase in the area entered.
- Hermes was the most widely grown variety for seed in Scotland.
- Royal, Arsenal and Shelford enter the ‘top 30’ by seed area entered for inspection.
- Slight rise in the total area of crops downgraded but area failed a touch lower than last year, to stand at a 10 year low.
- Blackleg remained the most common fault observed during growing crop inspections and was the most common reason for downgrading and failing crops. Although downgradings and failures were up on last year, they were well down on the levels recorded in 2011 and 2012.
- The seed area not holding grade due to mild mosaic remained at the very low levels recorded over the last 3 years.
- The seed area not holding grade due to severe mosaic declined to its lowest level recorded in any year since 2000.
- PVY^N was the most common virus detected in crops downgraded for mild and severe mosaic.
- The incidence of leafroll continued to decline, to stand at its lowest level recorded in any year since 2000. Only 3 crops contained leafroll infected plants and none of these crops was downgraded or failed.
- Rogues were the second most common fault observed during growing crop inspections, although the seed area not holding grade due to rogues, declined to its lowest level in 7 years.

NUMBER / AREA OF CROPS ENTERED FOR INSPECTION (Tables 1 and 2)

The total number of crops entered for inspection in 2014, stood at 4,745, up 2% on last year, while there was a 4.5% increase in the area of crops entered, to stand at 11,433 ha.

Table 1 Number of crops entered for inspection

Entry class	Number of crops entered 2014	Number of crops entered 2013	Number of crops + / -	% Number of crops + / -
Pre-Basic	1,442	1,416	+26	+1.8
Super Elite	2,948	2,872	+76	+2.6
Elite	355	366	-11	-3.0
Total	4,745	4,654	+91	+2.0

Table 2 Area of crops entered for inspection

Entry class	Area of crops entered 2014	Area of crops entered 2013	Area + / -	% Area + / -
Pre-Basic	851	728	+123.7	+17.0
Super Elite	9,488	9,020	+468.4	+5.2
Elite	1,093	1,191	-98.4	-8.3
Total	11,433	10,939	+493.7	+4.5

CHANGES IN VARIETY AREAS (Table 3)

There were a total of 269 listed varieties grown in 2014, however, for many of these varieties, only very small areas were grown. The combined area of the ‘top 30’ varieties, traditionally used for training growing crop inspectors, totalled 8,547 ha, equating to 74% of the total area entered for inspection.

Hermes was the most widely grown variety for seed in Scotland, taking the top spot from Maris Piper. The area of Hermes entered for inspection in 2014 was 1,668 ha, a substantial 26% increase compared with last year. In contrast, the area of Maris Piper was down 3% to stand at 1,365 ha. The combined areas of Hermes and Maris Piper accounted for 26% of the total seed area entered for inspection in 2014.

Table 3 Areas of the ‘top 30’ varieties in 2014

Variety	Area entered 2014	Change in area from 2013 (%)
Hermes	1,668	+26
Maris Piper	1,365	-3
Desiree	557	-13
Maris Peer	375	-36
Lady Rosetta	319	-8
Markies	313	+13
Cara	285	+9
Pentland Dell	279	-7
Estima	252	+16
Harmony	240	-9
Atlantic	229	+24
Valor	224	-3
Cabaret	196	+11
Burren	178	-14
Charlotte	167	+9
Russet Burbank	165	+25
Innovator	151	+45
Slaney	150	+20
Gemson	149	+35
Winston	149	-9
King Edward	146	-30
Banba	139	+16
Rooster	134	-9
Shepody	126	+6
Saxon	119	-26
Royal	115	+189
Wilja	105	+2
Arsenal	86	+107
Marfona	84	-6
Shelford	81	+60

Innovator and Gemson, both of which entered the ‘top 30’ last year, continue to increase in area, up 45% and 35% respectively compared with last year. There were also substantial increases in the areas grown of Royal, Arsenal and Shelford, all of which enter the ‘top 30’ this year. Royal is McCain’s Danish bred variety for French fry production; the Agrico variety Arsenal is a crisping variety with *Globodera pallida* resistance; while Shelford, a Hermes cross, is a PepsiCo crisping variety. Dropping out of the ‘top 30’ this year were Casablanca, Galactica and Osprey.

DOWNGRADINGS AND FAILURES (Table 4 and Fig. 1)

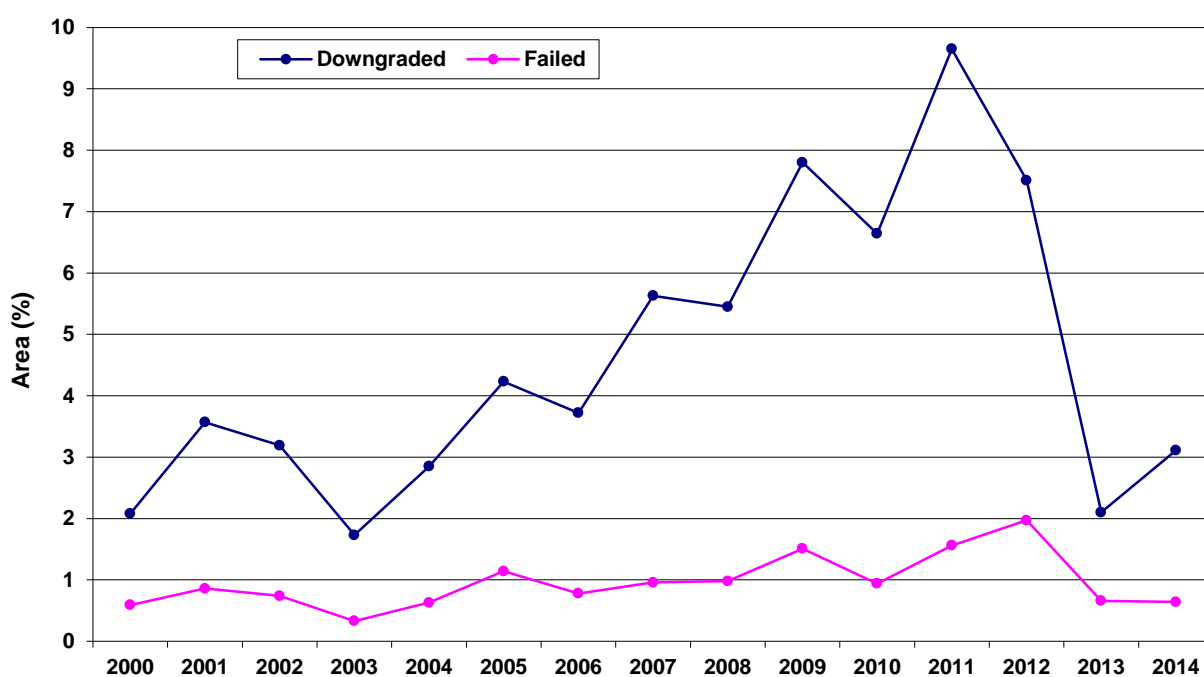
The total area of crops downgraded, rose slightly compared with last year, to just over 3% of the seed area entered for inspection, up from just over 2% recorded last year. Just over 9% of the PB area was downgraded, up from just under 7% recorded last year; 2.8% of the SE area was downgraded, up from 1.8%; and 2% of the Elite area was downgraded, up from 1.6%.

The total area of crops failing to make a grade in 2014, stood at 0.64% of the seed area entered for inspection, a touch lower than the figure of 0.66% recorded last year and the lowest level recorded in 10 years.

Table 4 Downgraded and failed statistics for 2014 (*figures in brackets are percentages)

	No. of crops downgraded*	Area of crops downgraded*	No. of crops failed*	Area of crops failed *
Pre-Basic	50 (3.5)	77.3 (9.1)	3 (0.2)	0.05 (0.01)
Super Elite	77 (2.7)	260.3 (2.8)	22 (0.8)	55.9 (0.6)
Elite	8 (2.3)	21.3 (2.0)	5 (1.4)	16.0 (1.5)
Total	135 (2.9)	358.9 (3.2)	30 (0.6)	71.9 (0.6)

Fig. 1 Seed area downgraded and failed (2000 – 2014) due to all growing crop faults (figures expressed as a % of seed area entered for inspection)



BLACKLEG (Table 5 and Figs. 2 to 6)

Blackleg remained the most common fault observed during growing crop inspections. Symptoms were recorded in 54% of the seed area inspected, up from 36% recorded last year.

Fig. 2 Total area with fault recorded at Growing Crop Inspection 2014
(figures expressed as a % of seed area entered for inspection)

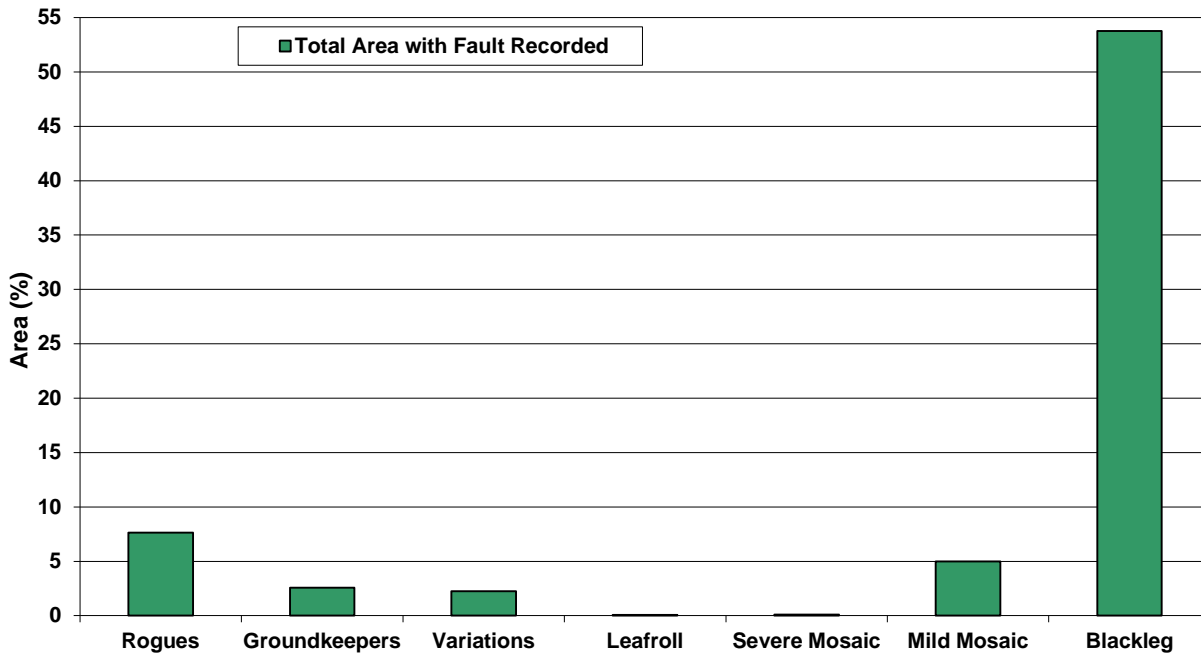
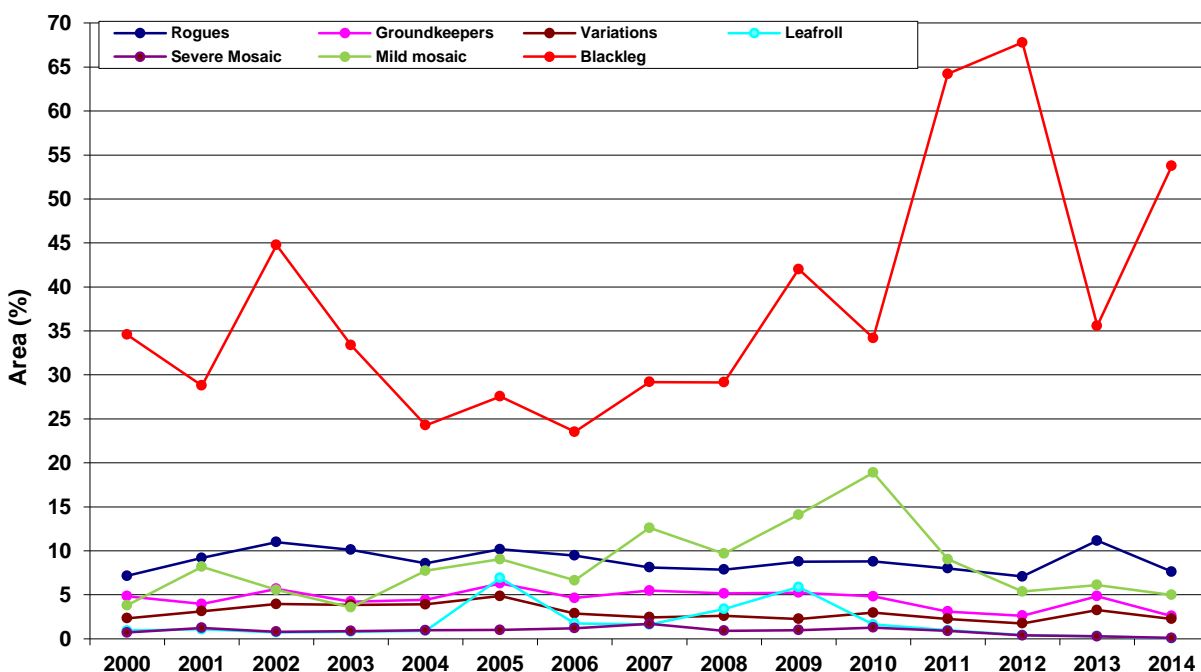


Fig. 3 Total seed area with fault recorded (2000 – 2014)
(figures expressed as a % of seed area entered for inspection)



Blackleg remained the most common reason for downgrading and failing crops in 2014, with 92 crops downgraded and 17 failed. Although downgradings and failures were up on last year, they were well down on the levels recorded in 2011 and 2012. The seed area downgraded for blackleg in 2014 stood at 2.5% compared with 1% recorded last year, while the area failed for blackleg was 0.5% compared with 0.3% recorded last year.

Fig. 4 Seed area downgraded and failed at Growing Crop Inspection 2014 by fault (figures expressed as a % of seed area entered for inspection)

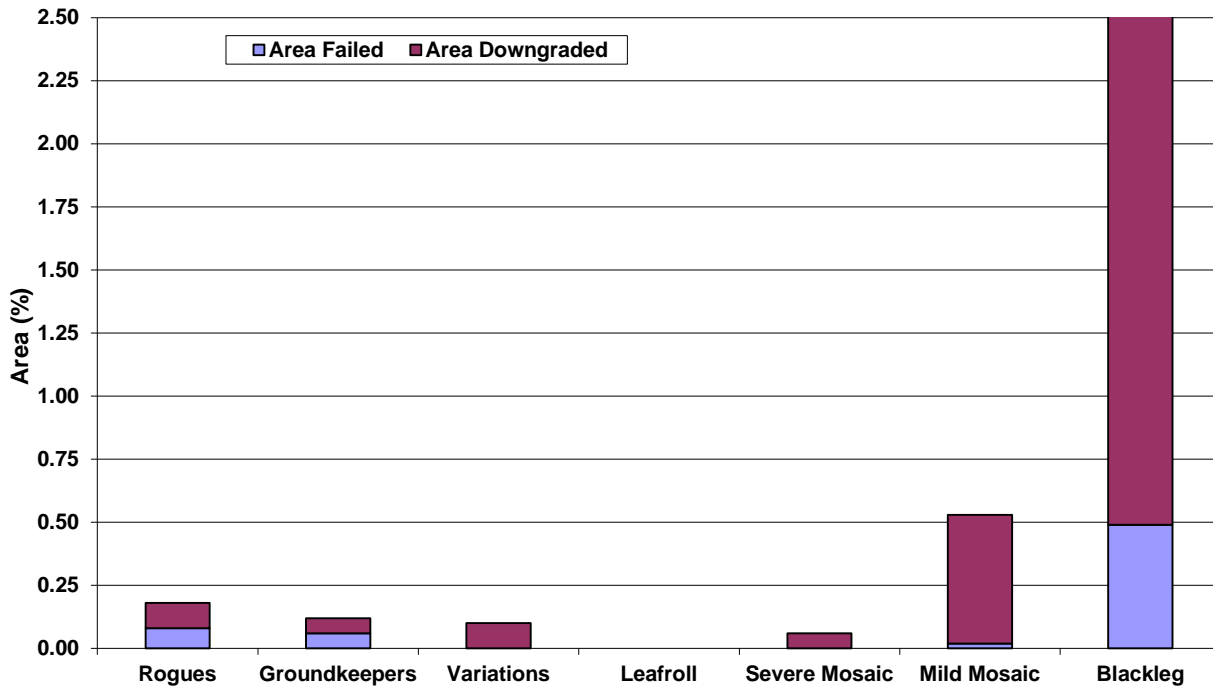
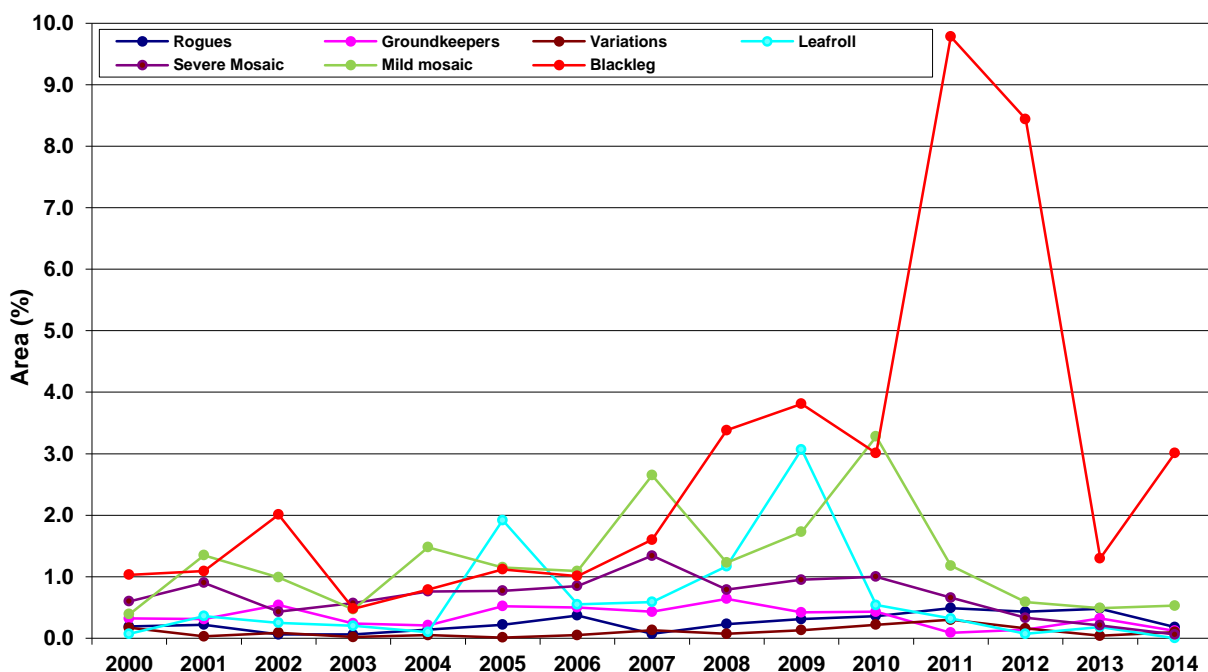
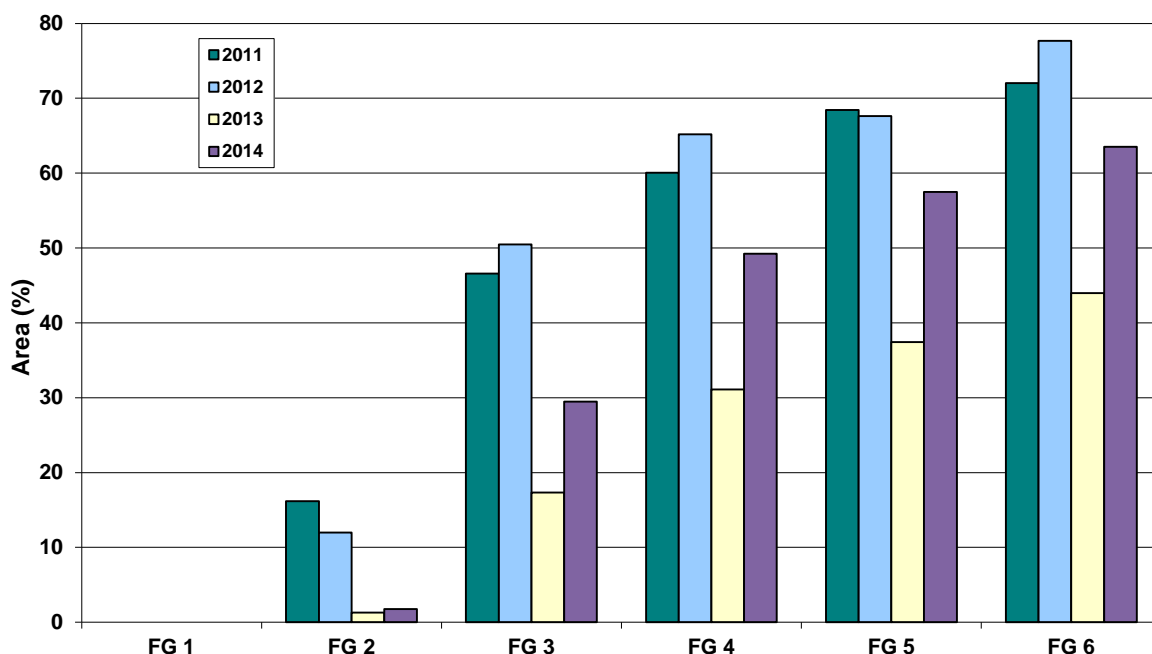


Fig. 5 Seed area not holding grade (2000 – 2014) by fault (figures expressed as a % of seed area entered for inspection)



As in previous years, there was an increase in the proportion of the seed area in which blackleg was recorded with each successive field generation. The areas recorded with blackleg in 2014 were up compared with last year but down compared with 2011 and 2012. Blackleg was recorded in 8% of the PB area, 56% of the SE area and 66% of the Elite area, up from 5%, 36% and 45% respectively, recorded last year.

Fig. 6 Area with blackleg recorded for each field generation (FG)
(figures expressed as a % of seed area entered for inspection for each field generation)



When the area of each variety entered for inspection is taken into account, the poorest performing ‘top 30’ variety against blackleg was Wilja, with 14.6% of the seed area not holding grade. However, this amounted to just 4 crops. Out-with the ‘top 30’, the varieties Shannon and Premiere did not perform well against blackleg with 56% and 36% of their respective areas not holding grade due to blackleg.

Table 5 Blackleg performance of the ‘top 30’ varieties at Growing Crop Inspection in 2014, compared with their resistance rating scores, recorded on the British Potato Variety Database (1 to 9 scale of increasing resistance) *figures in brackets are percentages

Variety	Area of crops downgraded or failed for blackleg*	No. of crops downgraded or failed for blackleg*	Resistance rating score
Wilja	15.4 (14.6)	4 (8.0)	5
Rooster	17.3 (12.9)	2 (4.5)	7
Cara	29.0 (10.2)	3 (3.3)	6
Arsenal	7.5 (8.7)	3 (8.6)	-
Winston	10.5 (7.0)	2 (3.8)	4
Markies	19.5 (6.2)	5 (4.5)	7
Shelford	4.2 (5.2)	1 (2.4)	7
Estima	12.2 (4.8)	2 (1.9)	2
Banba	6.1 (4.4)	2 (3.6)	2
Marfona	3.5 (4.1)	1 (2.4)	5
Slaney	5.5 (3.7)	1 (1.9)	5
Charlotte	4.0 (2.4)	1 (1.8)	8
Desiree	12.3 (2.2)	4 (2.1)	4
Hermes	24.9 (1.5)	7 (1.4)	6
King Edward	1.7 (1.2)	1 (1.4)	4
Maris Piper	1.6 (0.1)	1 (0.3)	5
All other varieties	0	0	

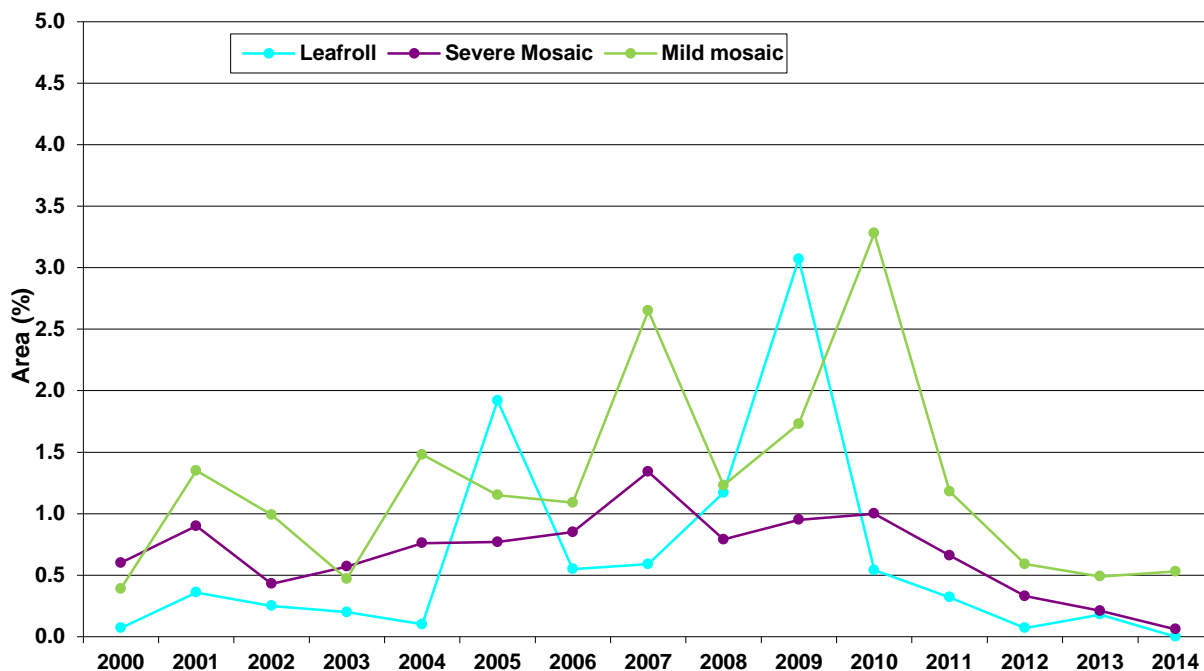
MILD MOSAIC / SEVERE MOSAIC / LEAFROLL (Fig. 7)

The seed area not holding grade due to mild mosaic remained at the very low levels recorded over the last 3 years. Mild mosaic was recorded in 5% of the seed area inspected in 2014, slightly less than that recorded last year (6%). Thirty-six crops were downgraded and 2 crops failed, amounting to 0.5% of the seed area not holding grade. Mild mosaic was recorded in 1.4% of the PB area, 4% of the SE area and 15% of the Elite area. The poorest performing variety with regard to mild virus was Atlantic, with 8 crops downgraded and 1 failed. All of these crops were infected with PVY^N. Nearly all (33 out of the 38 crops downgraded or failed for mild mosaic) were infected with PVY^N. Four of these crops were also infected with PVY^O. For the remaining crops, 2 were infected with PVX, 1 with PVA, 1 crop had a mix of PVX and PVA infection and 1 crop had a mix of PVX and PVY^N infection. Nineteen of the crops downgraded for mild mosaic were PB crops, which accounts for half of all crops downgraded or failed for mild mosaic.

The seed area not holding grade due to severe mosaic declined to 0.06% of the area entered, the lowest level recorded in any year since 2000. Five crops were downgraded and none failed. PVY^N was found in all crops downgraded for severe mosaic, with 1 crop having both PVA and PVY^N infection.

The incidence of leafroll continued to decline to stand at 0.06% of the seed area inspected in 2014, the lowest level recorded in any year since 2000. Leafroll was only detected in 3 crops, 2 of which were Desiree. No crops were downgraded or failed due to leafroll.

Fig. 7 Seed area not holding grade (2000 – 2014) due to virus (figures expressed as a % of seed area entered for inspection)



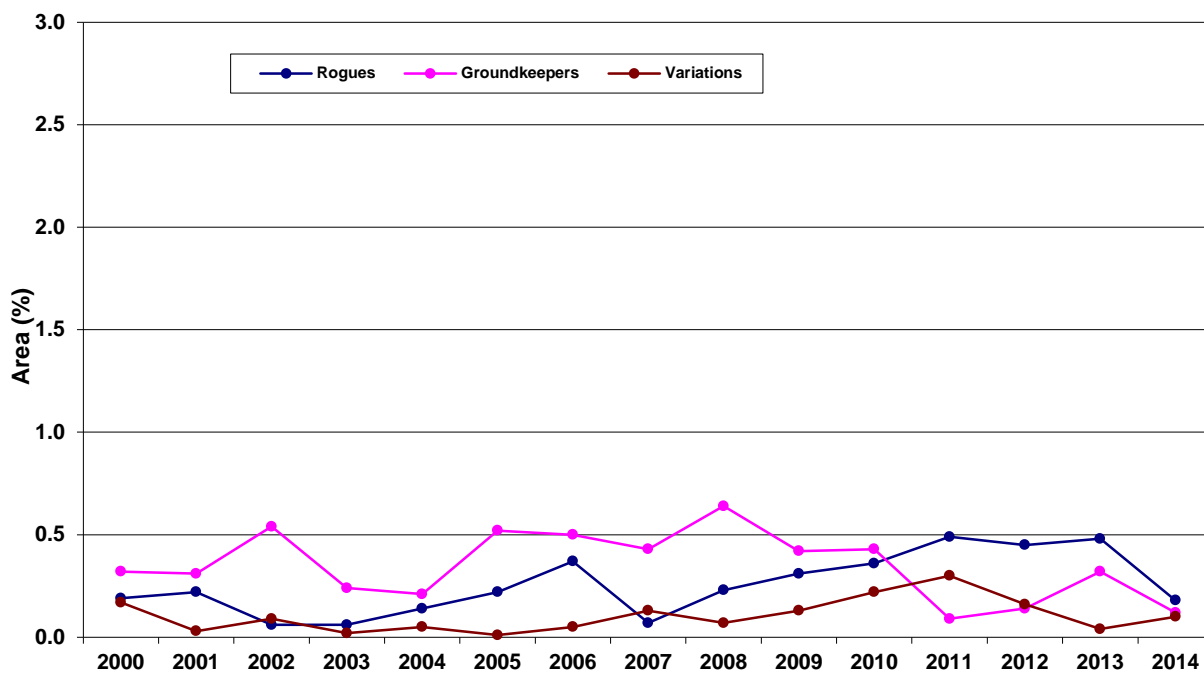
DEVIATIONS FROM VARIETY AND TYPE (Figs. 2 and 8)

Rogues were the second most common fault observed during growing crop inspections, recorded in 8% of the seed area inspected, a decrease from 11% recorded last year. The seed area not holding grade due to rogues also declined to its lowest level in 7 years. Four crops were downgraded and 4 crops failed (3 of which were part crops which were split from the main crop due to rogues).

Groundkeepers were recorded in 2.6% of the seed area inspected, down from 4.8% recorded last year. This is the lowest level recorded in any year since 2000. There was also a decrease in the seed area not holding grade due to groundkeepers. Two crops were downgraded and 4 crops failed (3 of which were part crops which were split from the main crop due to groundkeepers).

Variations were recorded in just over 2% of the seed area inspected, slightly less than that recorded last year, while there was a slight increase in the seed area not holding grade due to variations. Eight crops were downgraded and 3 crops failed. All crops not holding grade due to variations were PB grade but it should be noted that 7 of the downgraded crops had other faults (rogues, mild mosaic, blackleg) within them, which was the principle reason for downgrading.

Fig. 8 Seed area not holding grade (2000 – 2014) due to rogues, groundkeepers and variations (figures expressed as a % of seed area entered for inspection)



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Notes:

- The data presented in this report is correct as at 30/09/14. As the SPUDS system is continually being updated, statistical tables run before or after this date may give slightly different results. For example, a variety may be added to the national list/common catalogue and, therefore, have its 'variety status' changed on SPUDS to 'listed'. As a result of the change, this variety will be included in the statistical reports whereas previously it would have been excluded.
- Some crops may have been downgraded and/or failed for more than one reason so will be duplicated in the statistics e.g. a crop may have been downgraded for blackleg but failed for rogues. In this case it would appear as a failed crop under rogues but only a downgraded crop under blackleg.
- For crops with a particular fault but within tolerance for grade these are based on 2nd inspection findings only.