SCST Proficiency Testing Task Force Report

2003-2004 Samples
Medicago sativa, alfalfa - purity and germination
Daucus carota, carrot- purity and germination

Sample Preparation
- According to the ISTA protocol
- 10 samples of each tested for uniformity and results evaluated by the SCST Statistics Committee
- Samples sent February 1st, 2004
- Results due April 15th, 2004

Contaminants
Alfalfa -
      1 Centaurea stoebe
      1 Hypericum perforatum
      5 Trifolium pratense
      2 Trifolium vesiculosm
Carrot-
      2 Bassia scoparia
      2 Chenopodium album
      2 Setaria italica subsp. viridis
      1 Echninochloa crus-galli
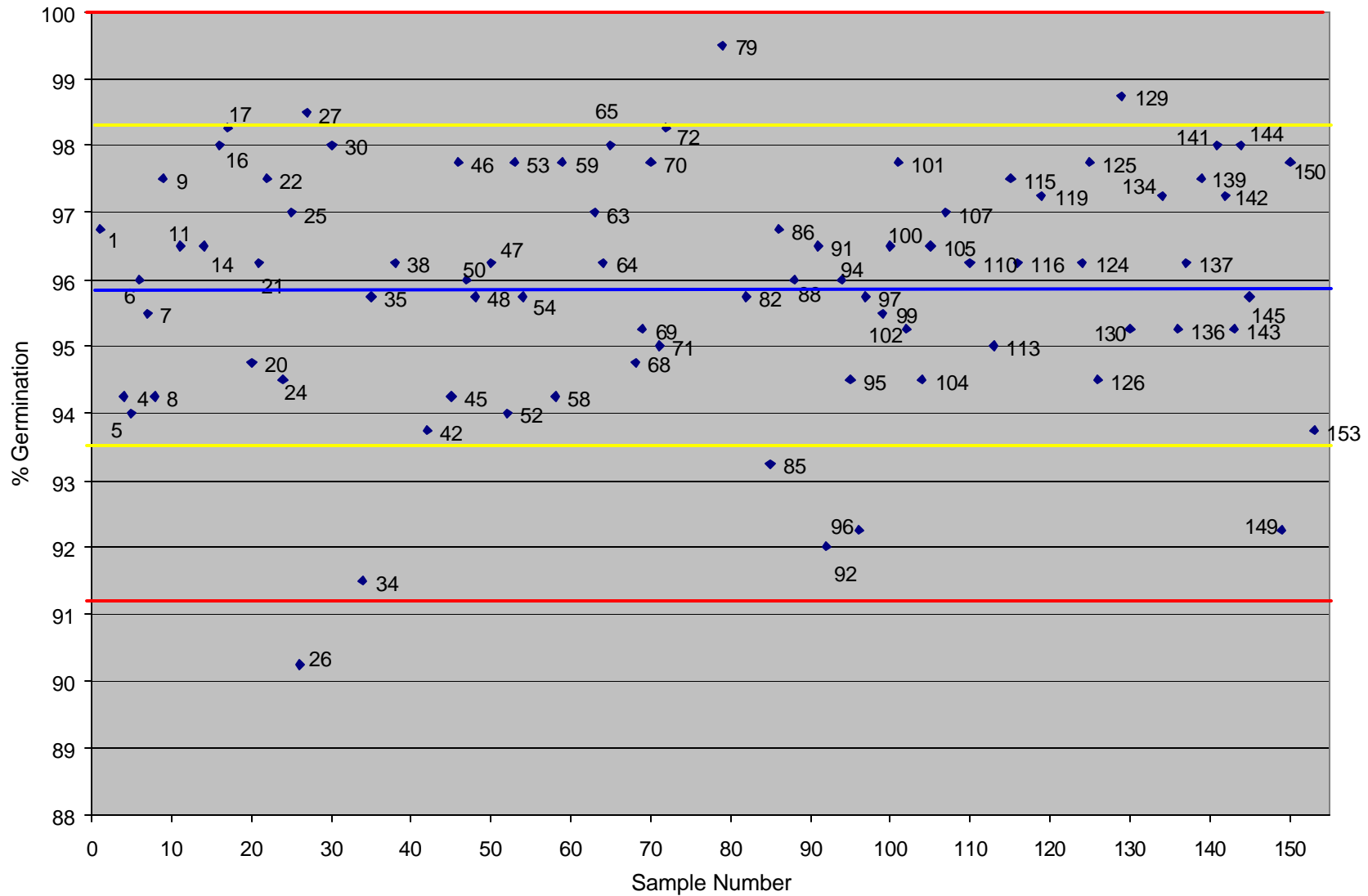
Analysis of Results

Medicago sativa (alfalfa) Germination Analysis

Germination (normal + hard) evaluation (81 results returned):
- 90% fell within one standard deviation of the mean
- 99% fell within two standard deviations of the mean
- Outlier sample numbers: 26

Medicago sativa germination	Normal seedlings	Abnormal seedlings	Dead seed
Mean	95.97	3.11	0.92
Standard deviation	2.4	1.95	1.40
Mean + 1 standard deviation	98.37	5.06	2.32
Mean - 1 standard deviation	93.57	1.16	-0.48
Mean + 2 standard deviation	100.77	7.01	3.72
Mean - 2 standard deviation	91.17	-0.79	-1.88

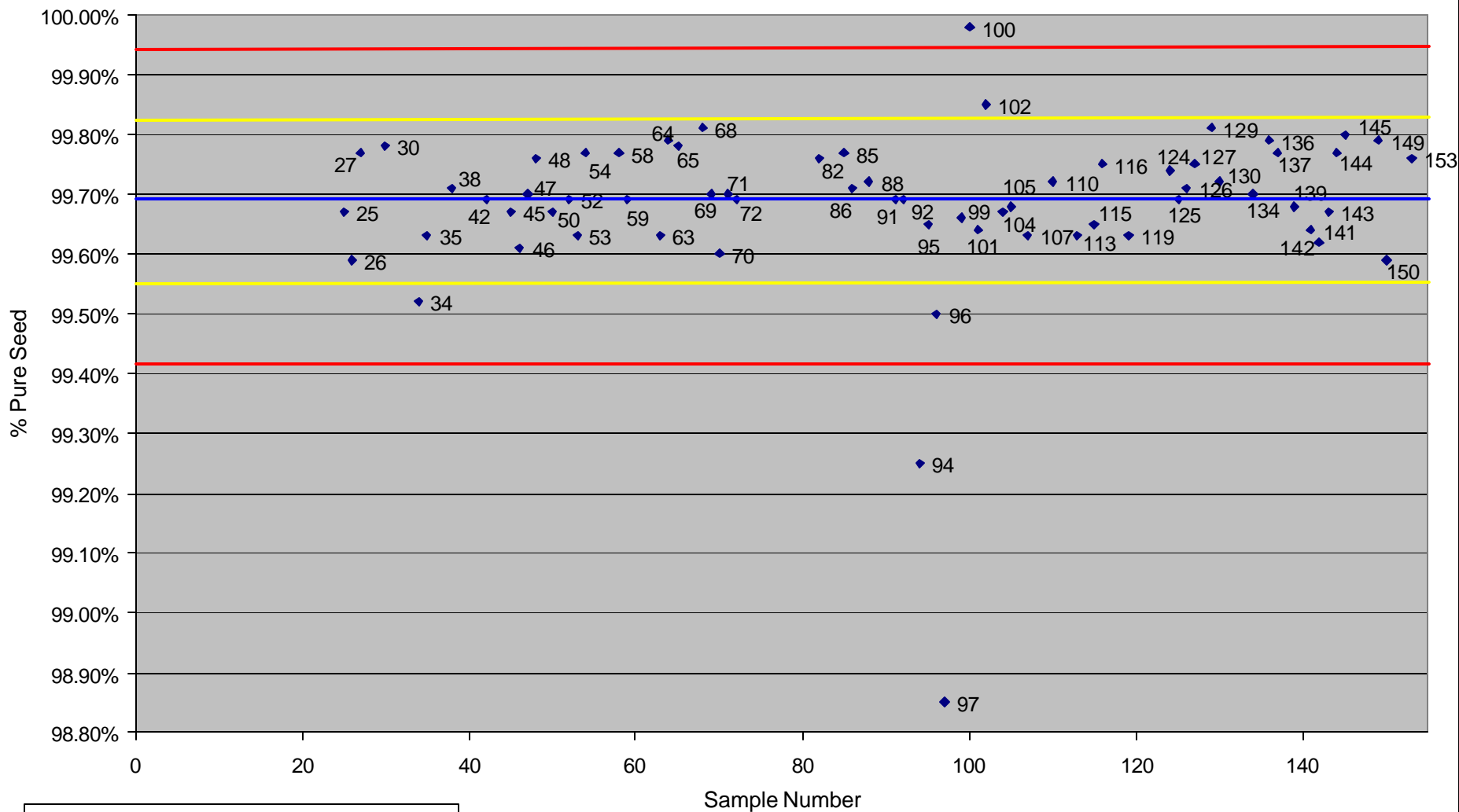Medicago sativa Germination (normal + hard) Anaylsis

Medicago sativa (alfalfa) Purity Analysis

Pure seed analysis (80 results returned)
- 93% fell within one standard deviation of the mean
- 96% fell within two standard deviations of the mean
- Outlier sample numbers: 94, 97, 100

Medicago sativa purity analysis	Pure seed	Inert Matter	Crop seed	Weed seed
Mean	99.69	0.02	0.24	0.06
Standard deviation	0.13	0.03	0.13	0.04
Mean + 1 standard deviation	99.82	0.05	0.37	0.1
Mean - 1 standard deviation	99.56	-0.01	0.11	0.02
Mean + 2 standard deviation	99.95	0.08	0.5	0.14
Mean - 2 standard deviation	99.43	-0.04	-0.02	-0.02

Medicago sativa Purity Analysis

Legend
One standard deviation
Two standard deviations
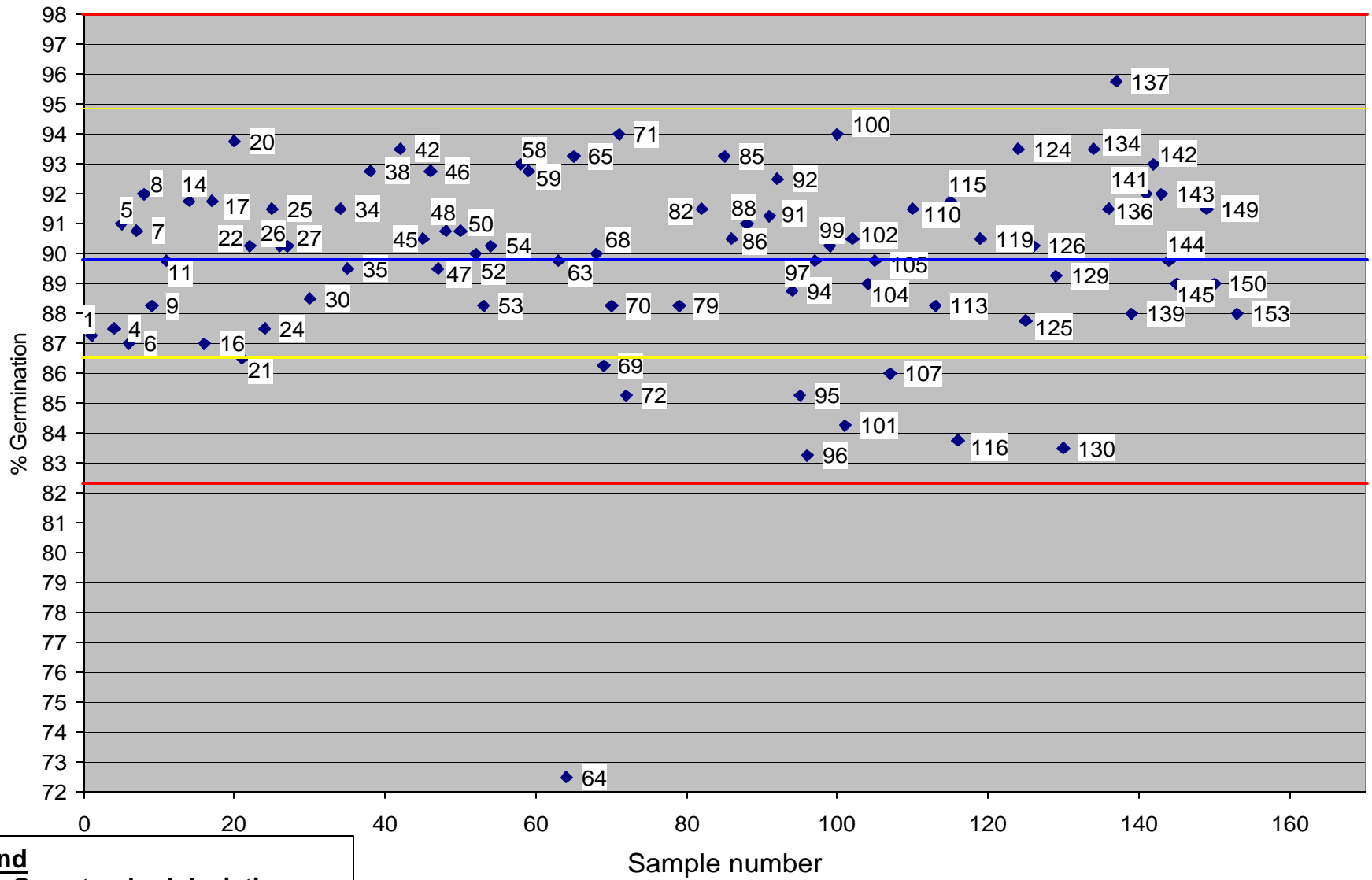¨ data marker w/sample number

Daucus carota (carrot) Germination Analysis

Germination evaluation (81 results returned):
- 88% fell within one standard deviation of the mean
- 99% fell within two standard deviations of the mean
- Outlier sample numbers: 64

Daucus carota germination	Normal seedlings	Abnormal seedlings	Dead seed
Mean	89.75	2.57	7.69
Standard deviation	4.10	2.11	3.75
Mean + 1 standard deviation	93.85	4.68	11.4
Mean - 1 standard deviation	85.65	0.46	3.94
Mean + 2 standard deviation	97.95	6.76	15.15
Mean - 2 standard deviation	81.55	-1.65	0.19

Daucus carota Germination Analysis

% Germination

Sample number

Legend
One standard deviation
Two standard deviations
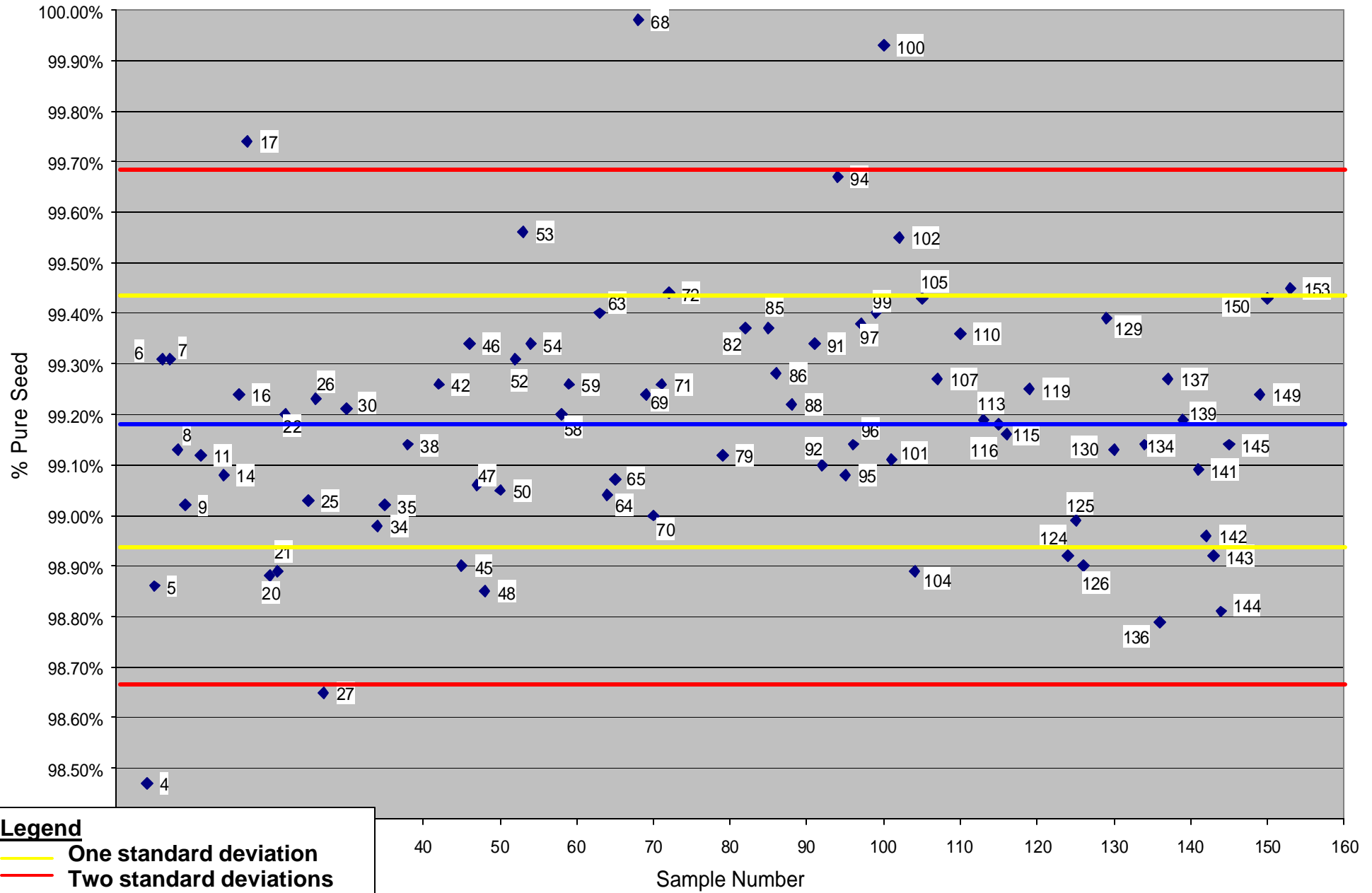¨ data marker w/sample number

<u>*Daucus carota (* carrot) Purity Analysis</u>

Pure seed analysis (80 results returned)
- 75% fell within one standard deviation of the mean
- 94% fell within two standard deviations of the mean
- Outlier sample numbers: 4, 17, 27, 68, 100

Medicago sativa **purity analysis**	**Pure seed**	**Inert Matter**	**Crop seed**	**Weed seed**
Mean	99.18	0.59	0.01	0.22
Standard deviation	0.25	0.24	0.02	0.06
Two Standard deviation	0.51	0.48	0.04	0.13
Mean + 1 standard deviation	99.43	0.83	0.03	0.28
Mean - 1 standard deviation	98.93	0.35	-0.01	0.16
Mean + 2 standard deviation	99.69	1.07	0.05	0.34
Mean - 2 standard deviation	98.67	0.11	-0.03	0.1

Daucus carota % Pure Seed

<u>Contaminants</u>

The *Medicago sativa* sample contained an admixture of the following contaminants:

5 Trifolium pratense
2 Trifolium vesiculosum
1 Centaurea stoebe
2 Hypericum perforaturm

Percentage of participants who correctly retrieved and identified the admixtures species:

Trifolium pratense
41% successfully retrieved and identified five
28% successfully retrieved and identified four
20% successfully retrieved and identified three
10% successfully retrieved and identified two
 1% successfully retrieved and identified one

Trifolium vesiculosum
81% successfully retrieved and identified two
 5% successfully retrieved and identified one
14% successfully retrieved and identified none

Centaurea stoebe
88% successfully retrieved and identified one
12% successfully retrieved and identified none

Hypericum perforaturm
85% successfully retrieved and identified two
9% successfully retrieved and identified one
6% successfully retrieved and identified none

The *Daucus carota* sample contained an admixture of the following contaminants:

2 Bassia scoparia
2 Chenopodium sp.
2 Setaria italica subsp. viridis
1 Echinochloa crusgalli

Percentage of participants who correctly retrieved and identified the admixtures species:

Bassia scoparia:
59% successfully retrieved and identified two

17% successfully retrieved and identified one
24% successfully retrieved and identified none

Chenopodium sp.
95% successfully retrieved and identified two
 4% successfully retrieved and identified one
 1% successfully retrieved and identified none

Setaria italica subsp. viridis
89% successfully retrieved and identified two
 5% successfully retrieved and identified one
 6% successfully retrieved and identified none

Echinochloa crusgalli
85% successfully retrieved and identified one
15% successfully retrieved and identified none