



Connections Through Seed

Seed Planning and Registry application

SPAR Sowing Rules *(they are really Guidelines)*

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Think of **Sowing Rules**
as the

Pirates' Code:

*the code is more what you'd call
"guidelines" than actual "rules"*





Terminology: Sowing Rules vs Sowing Guidelines

Sowing Rules – term used for the SPAR data (tables) and calculations (code). SPAR uses:

- Seedlot data – germination percent, seeds per gram
- Container type, cavities per block, seeds per block, seeds per cavity and sowing correction factor.

Sowing Guidelines – term used for the guidelines provided by the ministry for how much seed a nursery requires to produce seedlings for a client, given the seedlot, germination, seeds per gram, nursery, etc.



Background - SPAR Sowing Rules and Calculations

- SPAR was developed in 1992 as a mainframe system to replace the “Tree Seed Registry” and “Sowing Request” databases and incorporate “Seed Transfer Rules”, “Sowing Rules” and other functionality to connect seeds with seedlings.
- 1993 - The most common container type was a 313B (160), followed by 415B (112) and 211A (240).
- Sowing rules were designed for “Seeds per Cavity” of 1.0, 2.0, 3.0 or more , with a “Nursery Handling Factor” and “Oversow Factors” of 1.35, 1.40, or more. Nurseries liked to see those values on SPAR reports so they could use them for sowing along with No. of Blocks.
- When we went to ‘fractional’ sowing, all these values changed.



SPAR Tables used in Sowing Rule Calculations:

- **Cavities per Block**
- **Seeds per Block** - adds in a Nursery Handling Factor (extra seed)
- **Sowing Rule Factor** – based on germination percent (2% groups – eg 97-98), has Seeds per Cavity and Correction Factor (Oversow)
- **Seedlot** – each Seedlot has data including Seeds per Gram and Germination percent based on current test results
- When a Seedling Request is entered and a Seedlot selected, a formula uses data from all these tables to calculate the Gram Quantity for the request.
- Likewise, a Seedlot has 'Potential Trees' based on the same calculations (using a default of a112 cavity block)



Are you confused yet?

*.... No wonder Pirates made their code go
from 'rules' to 'guidelines'*



We refer to:

“Seeds per Seedling” (example for a ‘112’)

Germ % from	Germ % To	Seeds per Cavity	Seeds per Block	Correction Factor	Seeds per Seedling
99	100	1.2	157	1.25	1.75
97	98	1.3	168	1.27	1.91
95	96	1.5	190	1.28	2.17
93	94	1.7	213	1.28	2.43
91	92	1.8	224	1.28	2.56
89	90	2.0	246	1.26	2.77
87	88	2.2	269	1.27	3.05
85	86	2.4	291	1.27	3.30



SPAR Sowing Rules are intended to be “Guidelines”
Nurseries should adjust the grams for each seedling request
according to their requirements.

Nursery Grams Adjustment Screen in SPAR

8 rows returned

Request ID	Lot	Species	Nursery	Stock Cntr Type	Stock Type	Plant Age	Plant Year	Plant Season	Request Agency	Seedlings (000's)	Grams	
2019DCR0003	63461	CW	NURSERY	PSB	412A	100000	2020	SP	FORSITE 04	55	217	<input type="text"/> Save <input type="button" value="Update"/>
2019DCR0004	60591	FDC	NURSERY	PSB	412B	100000	2020	SP	FORSITE 04	40.4	861	<input type="button" value="Update"/>
2019DCC0013	63347	FDI	NURSERY	PSB	412B	100000	2020	SP	FORSITE 05	10	237	<input type="button" value="Update"/>
2019DCC0002	39490	FDI	NURSERY	PSI	410	100000	2020	SP	TOLKO 03	3.3	70	<input type="button" value="Update"/>
2019DCC0001	52364	PLI	NURSERY	PSI	410	100000	2020	SP	TOLKO 03	5.5	48	<input type="button" value="Update"/>
2019DMH0006	61249	SX	NURSERY	PSB	412A	100000	2019	SU	FORSITE 00	25	196	<input type="button" value="Update"/>
2019DMH0008	61244	SX	NURSERY	PSB	412B	100000	2019	SU	FORSITE 05	120	774	<input type="button" value="Update"/>
2019DMH0009	61249	SX	NURSERY	PSB	412B	100000	2019	SU	FORSITE 05	62.3	488	<input type="button" value="Update"/>



There are many factors that affect the willingness of a nursery grower to reduce grams:

- **Experience with Genetic Class, Species, Seedlots**
- **No. of Seedlings Requested, Container Type, Seedlot Germination**
- **Nursery capacity, oversow factor based on greenhouse space**
- **Relationship between Request Agency and Nursery – nurseries work with the licensees and accept reduced grams when the request is entered and approved.**



Ministry funded seedling requests:

- BCTS Seedling Services reduces the grams for all Fdi Class A requests before tendering.
- For other Class A species where supply is tight and seed expensive, they offer an incentive of some \$\$ back for half the value of the seed quantity saved.

Other factors that complicate gram reductions:

- Private surplus seedlots require coordination
- Priority processed seedlots use 'species average' germination, so shouldn't be reduced until germination test complete.
- Scarce supply of some Class A seedlots require quick updates to make seed available to others to use.



**Example of Seedling Requests where Grams have
been adjusted by then Nursery**
(*Seedling Request Extract for Nurseries*) [Nursery Extract.xlsx](#)

Nurseries need to be part of seed use efficiency:

- Do their own gram adjustments.
- Do a weekly download of the SPAR extracts to monitor requests assigned.
- Check nursery sow dates and reduce grams for requests early in the request entry season, NOT just before the seed is due to be withdrawn.



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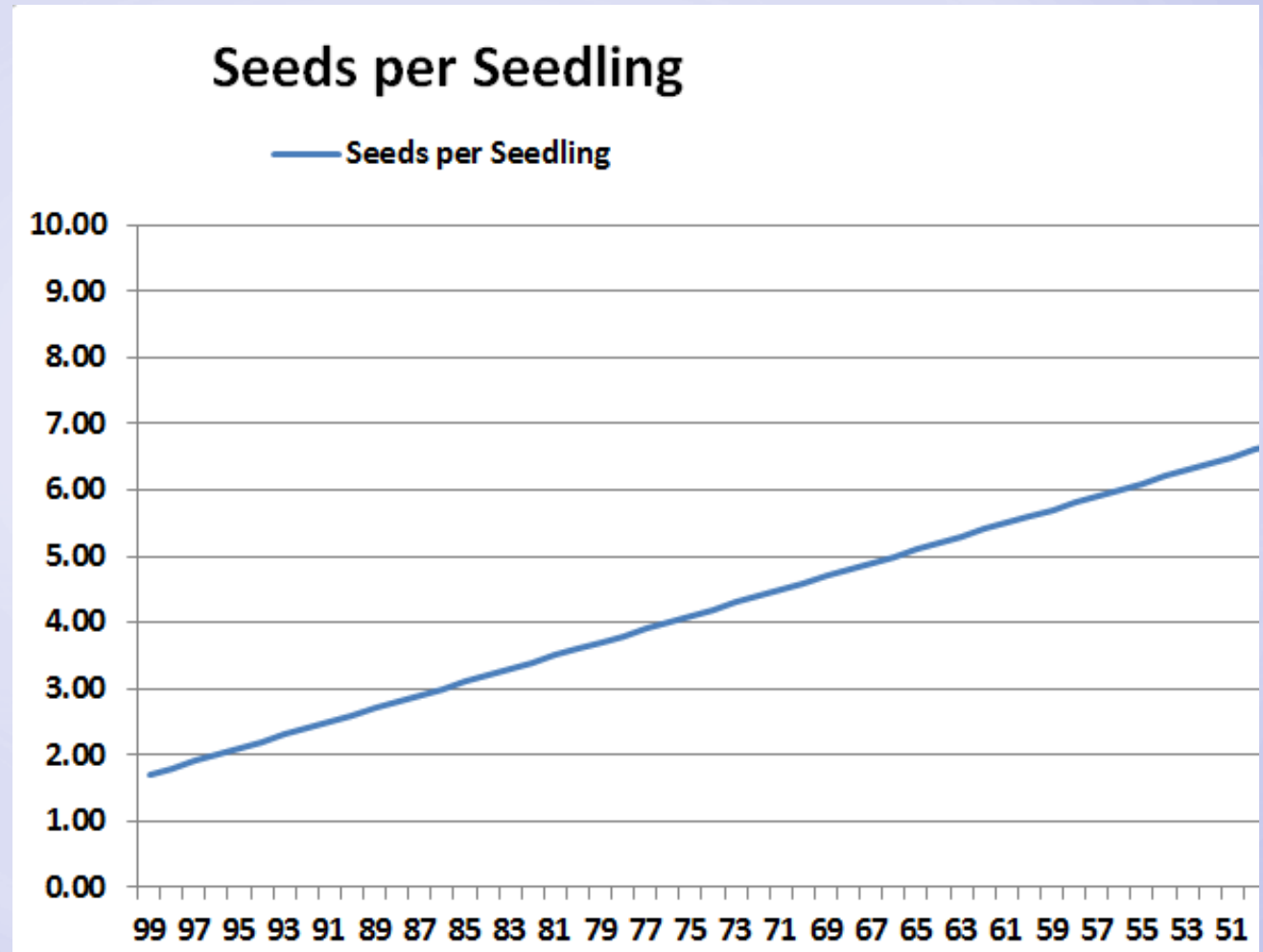
**Possible change
in SPAR:**

**Replace current
tables and formula
with a simpler Seeds
Per Seedling table.**

Species	Genetic Class	Germination	Seeds per Seedling
All except Pli and Pw	B	99	1.70
All except Pli and Pw	B	98	1.80
All except Pli and Pw	B	97	1.90
All except Pli and Pw	B	96	2.00
All except Pli and Pw	B	95	2.10
All except Pli and Pw	B	94	2.20
All except Pli and Pw	B	93	2.30
All except Pli and Pw	B	92	2.40
All except Pli and Pw	B	91	2.50
All except Pli and Pw	B	90	2.60
All except Pli and Pw	B	89	2.70
All except Pli and Pw	B	88	2.80
All except Pli and Pw	B	87	2.90
All except Pli and Pw	B	86	3.00
All except Pli and Pw	B	85	3.10
All except Pli and Pw	B	84	3.20
All except Pli and Pw	B	83	3.30
All except Pli and Pw	B	82	3.40
All except Pli and Pw	B	81	3.50
All except Pli and Pw	B	80	3.60



Results
in a
graph
like this





Nursery Grams Adjustment screen can be changed

Species	Container Type	Lot Number	Genetic Class	Genetic Worth	Germ Percent	Number of Seedlings Requested	Nbr. of Grams Requested	Seeds per Seedling	Update
FDI	412A	19905	B		92	14.3	356	2.4	
FDI	412A	53601	B		96	8.6	241	2.0	
FDI	412A	53975	B		98	95	2066	1.8	
LW	412A	63667	A	GVO+21	86	5.7	68	3.0	
LW	412B	63528	A	GVO+20	89	1.4	15	2.7	
LW	412B	63747	A	GVO+27	87	84.5	988	2.9	
SX	412A	63646	A	GVO+28	92	400.1	1913	2.4	



Could take other factors into account:

- **Cavities per block – more seeds per seedling for large stock types – eg 512A, 515A, 615A (or do all nurseries transplant germinants)**
- **Peak value or other seedlot test that shows the variation in germination percent**

Other ideas for SPAR Sowing Rules???



Seed Use Efficiency is not just about Seedling Requests, Seedlots and Nurseries ...

The calculations of Potential Seedlings from seed quantities are used for:

- **seed planning by seed owners/users**
- **seed orchard planning**

Therefore it's important to have realistic SPAR default calculations for planning!



Discussion