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Seabuckthorn (*Hippophae rhamnoides* L.) Cultivar Establishment and Survival in a Maritime Environment

David B. McKenzie

AAFC Research Centre, St. John's, Nfld Canada

Canada 

Salmon Cove, Newfoundland

- a small traditional fishing village with high unemployment



Salmon Cove, Newfoundland

Goal: employment from a small agricultural industry



Objectives

- 1) Modify the local soil for seabuckthorn
 - Remove trees and rocks
 - Improve soil pH, aeration & drainage
- 2) Evaluate male & female cultivars
 - Growth characteristics, winter survival, berry yield & quality
- 3) Assess economic suitability of the crop

Seabuckthorn fields on lower slopes of river valley

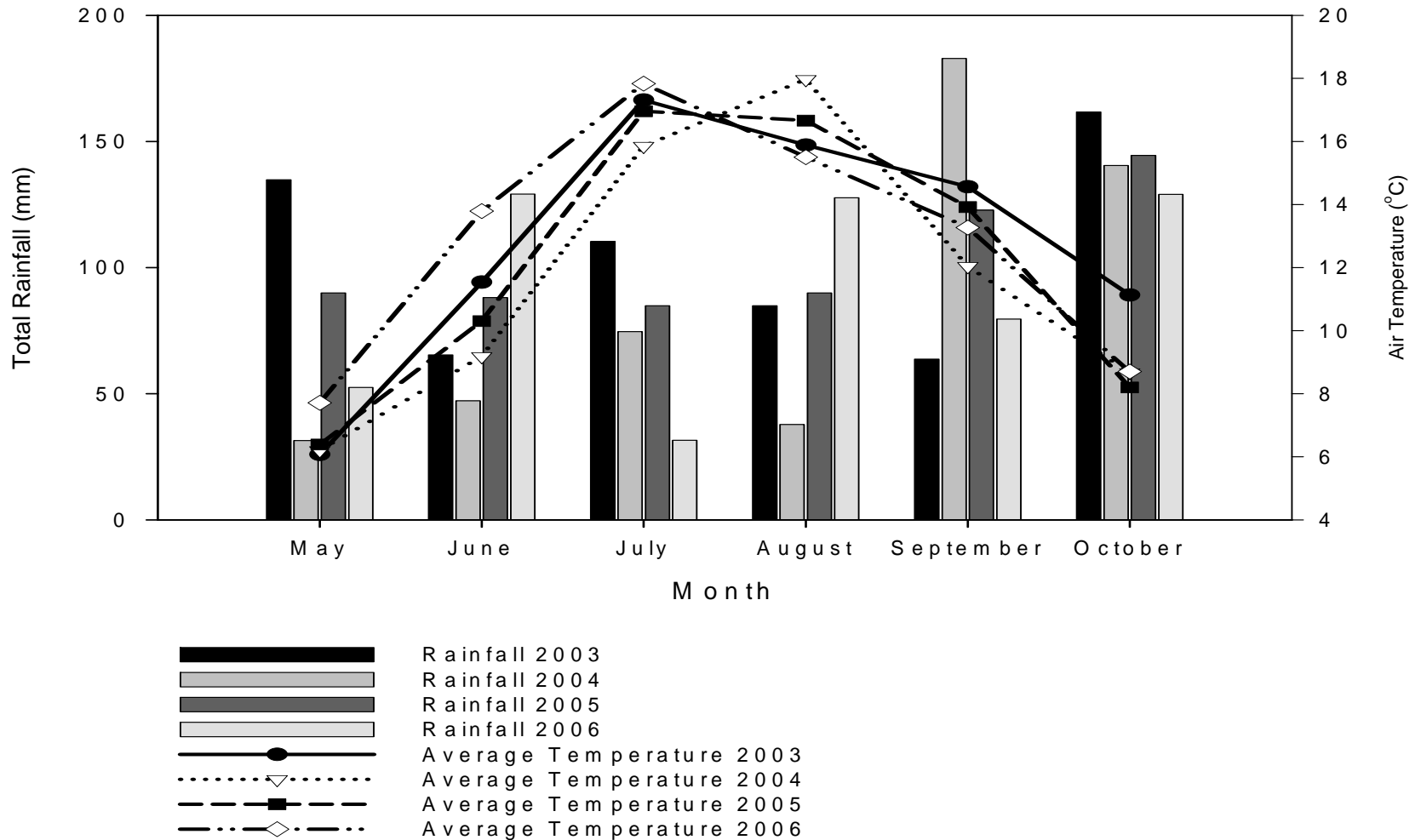


CROWN Field 0.93 ha
(West)

CASE Field 0.66 ha
(East)



Climate data from Salmon Cove field site



Field site preparation: trees removed by hand



Rocks removed by excavator and bulldozer



Smaller stones were removed by hand



Torn up ground was leveled



Tile drainage installation by laser elevation guide



Peat, lime & manure rotatilled into soil



Unstable soil root zone: Too much peat added



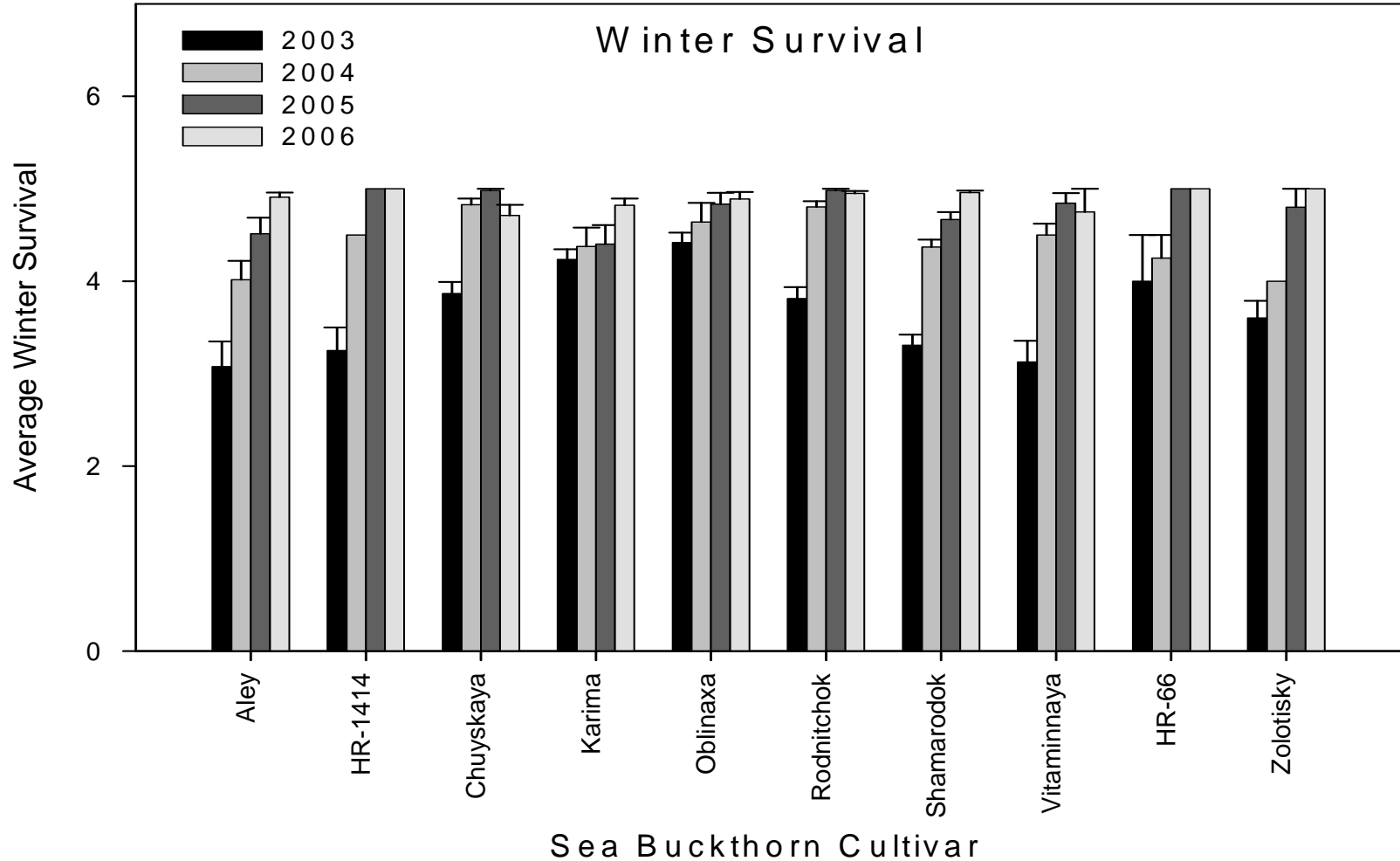
“Top People” were consulted...



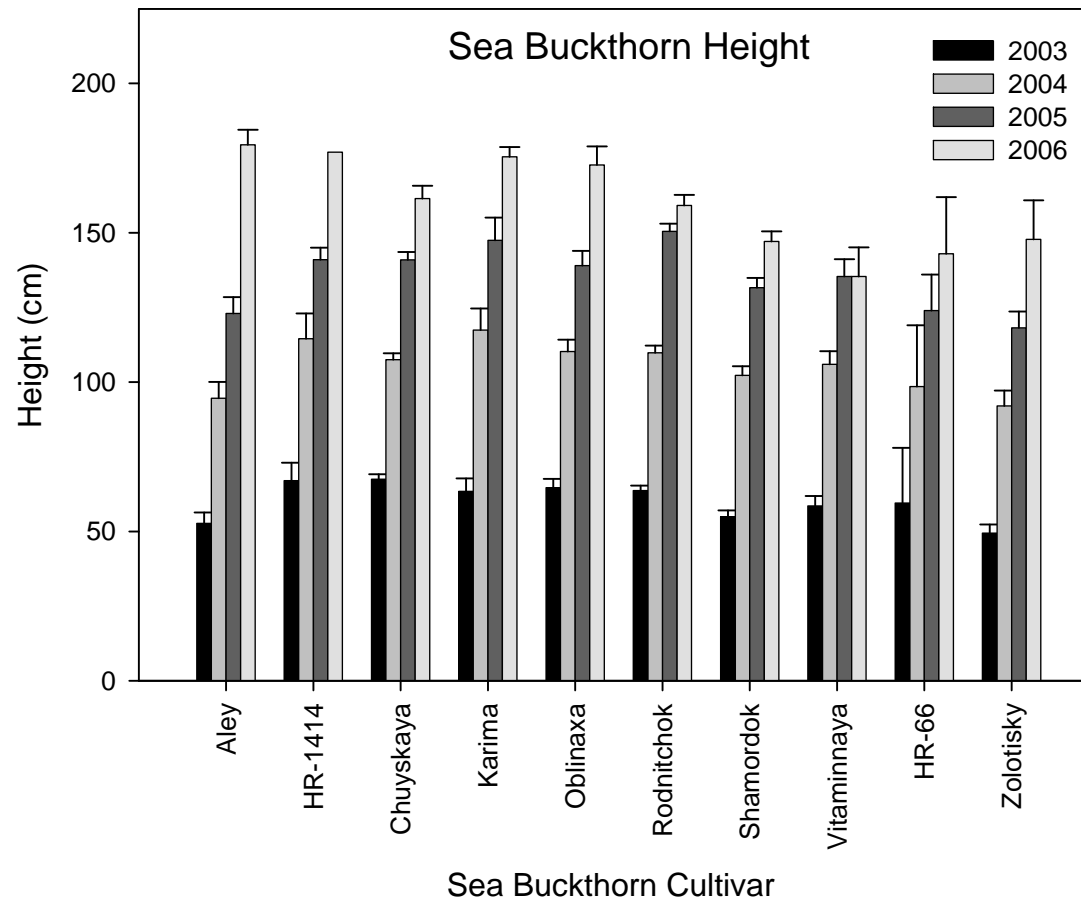
...and the trees grew well



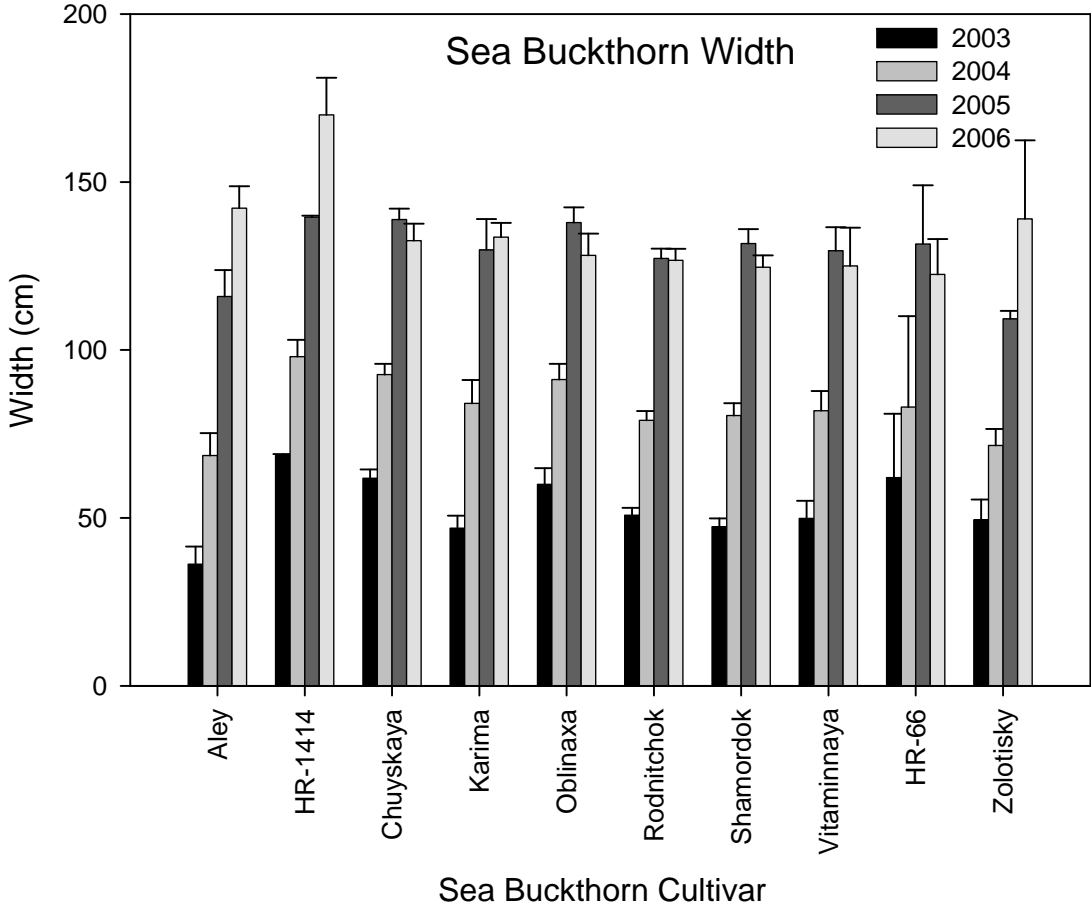
Spring Vigour Rating (1 to 5; 5=excellent)



Tree height at end of growing season



Tree width at end of growing season



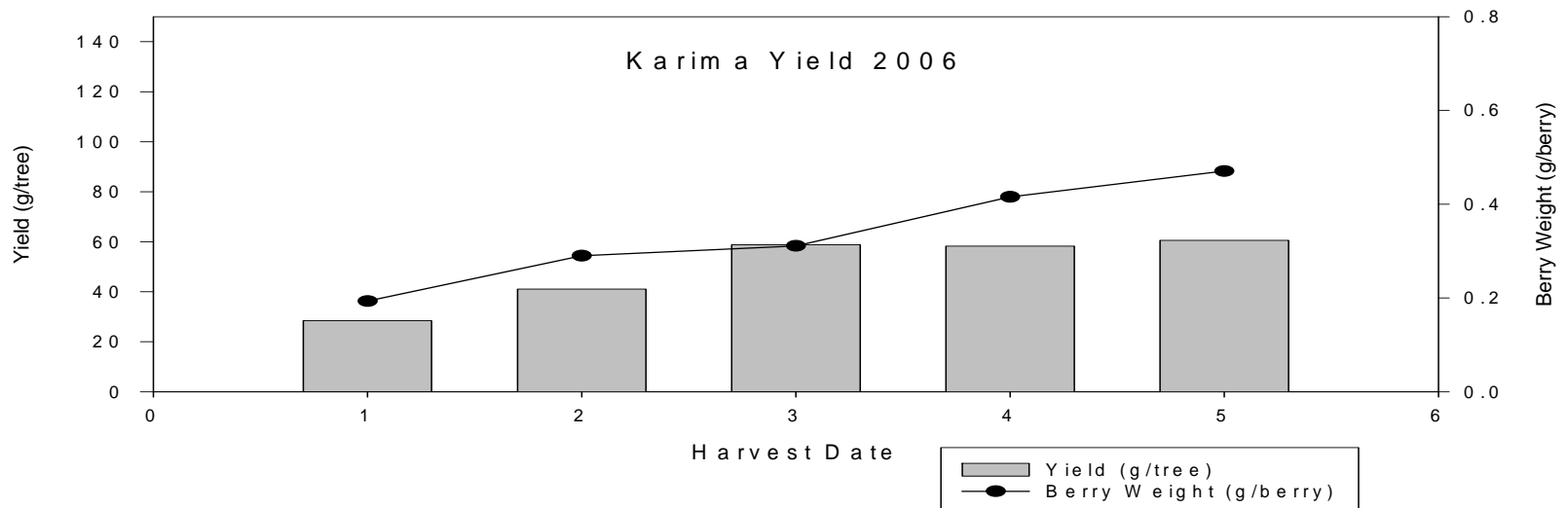
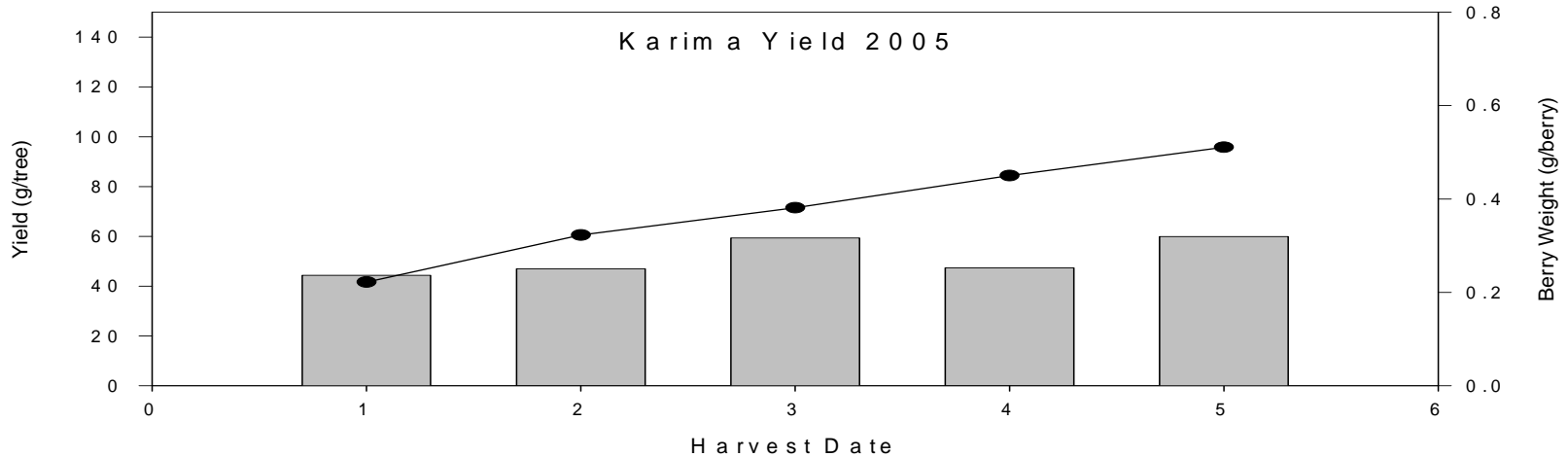
Some trees are setting fruit...



7-year old Seabuckthorn Berry Yields (2006)

Cultivar	# of Trees sampled	Total berry yield (g)	Max yield (g/tree)	Mean weight (mg/berry)
Chuyskaya	14	2188	850	435
Karima	15	741	103	336
Oblinaxa	14	834	179	323
Rodnitchok	15	746	190	385
Shamarodok	15	1067	393	328
Vitaminnaya	14	138	81	384
Zolotisky	4	42	23	349
Total	91	5755		

Berry Yield and Mean Weight at five harvest dates



2006 Berry Yields for Cultivar Chuyskaya

Harvest Date	Total berry yield (g)	Maximum yield (g/tree)	Mean berry weight (mg/berry)
7/28	173	114	154
8/06	374	374	333
8/18	1115	850	443
8/28	201	196	458
9/07	325	199	552

Seabuckthorn Berry Maturity Scale

Typical berries

1. Immature: green
2. Immature: green + yellow
3. Orangish immature
4. RIPE: orange and plump
5. Overripe= areas with drying damage, soft leaking juice

Problem berries

6. Undersized berries: very small yellow/orange berries
7. Other problem berries: berries with grey spots, diseased berries, malformed berries...

2006 Chuyskaya harvest #2 - class separation



2006 Karima harvest #2 - class separation



2006 Chuyskaya Berry Juice Characteristics

Harvest Date	Titratable Acidity (%)	pH	° Brix
7/28	2.79	2.63	8.0
8/06	2.42	2.78	8.4
8/18	1.69	2.94	12.6
8/28	0.94	3.11	9.9
9/07	0.93	3.22	12.5

Summary

- 1) Soil successfully modified
- Rock removal equipment - soil compaction
- Too much peat added – tree rooting problems
- Tile drainage & interception ditch

- 2/3) Trees adapted to cool wet climate
- Siberian cvs growing vigorously but...
- fruit yields variable – Latvian cvs better adapted?

Any Questions?





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