Impact of Rising Imports and Input Costs on U.S. Chile Industry
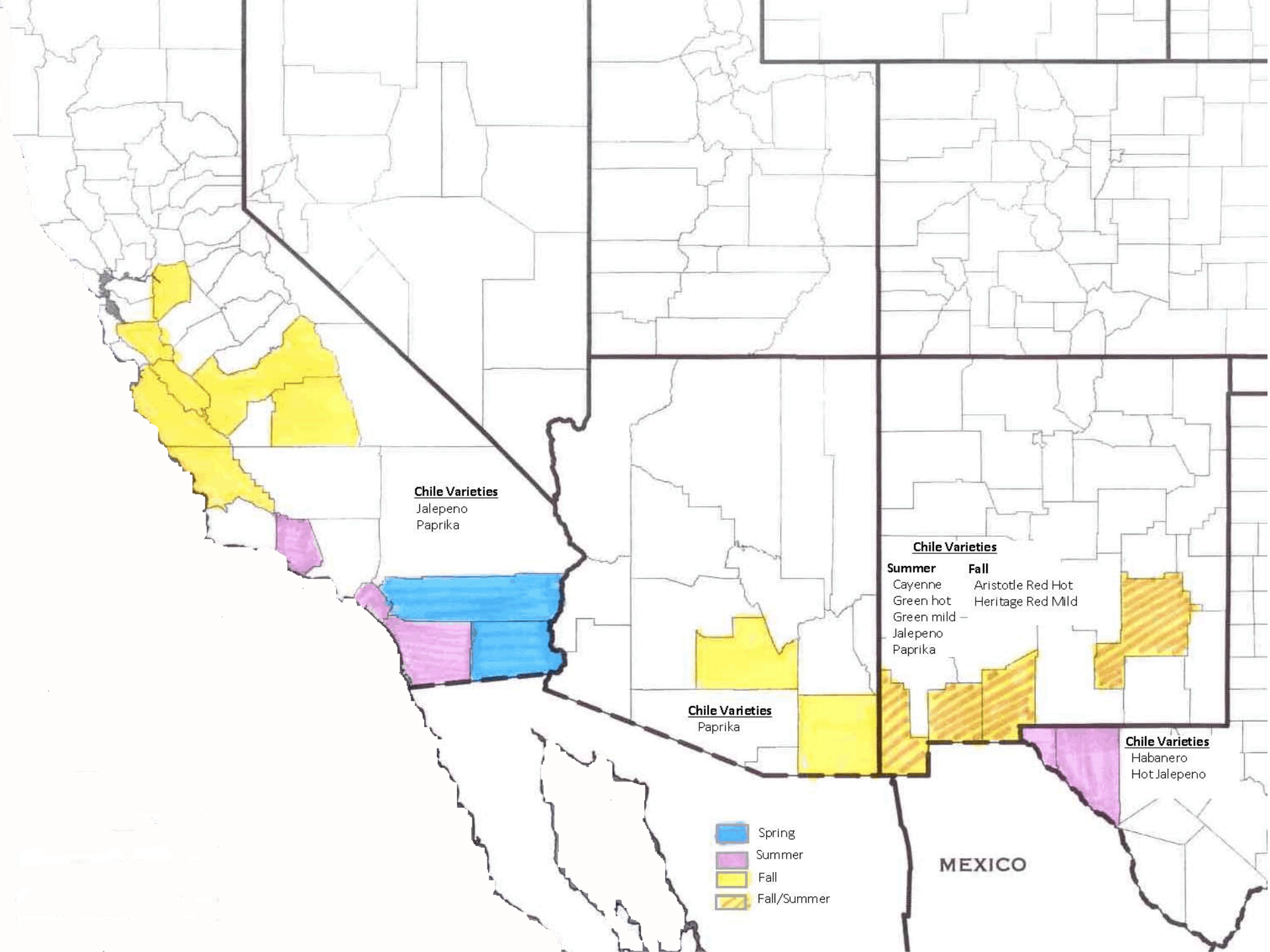
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Introduction

- Background:
  - Chile is an integral part of southwestern living

Chile Varieties
Jalepeno
Paprika

Chile Varieties

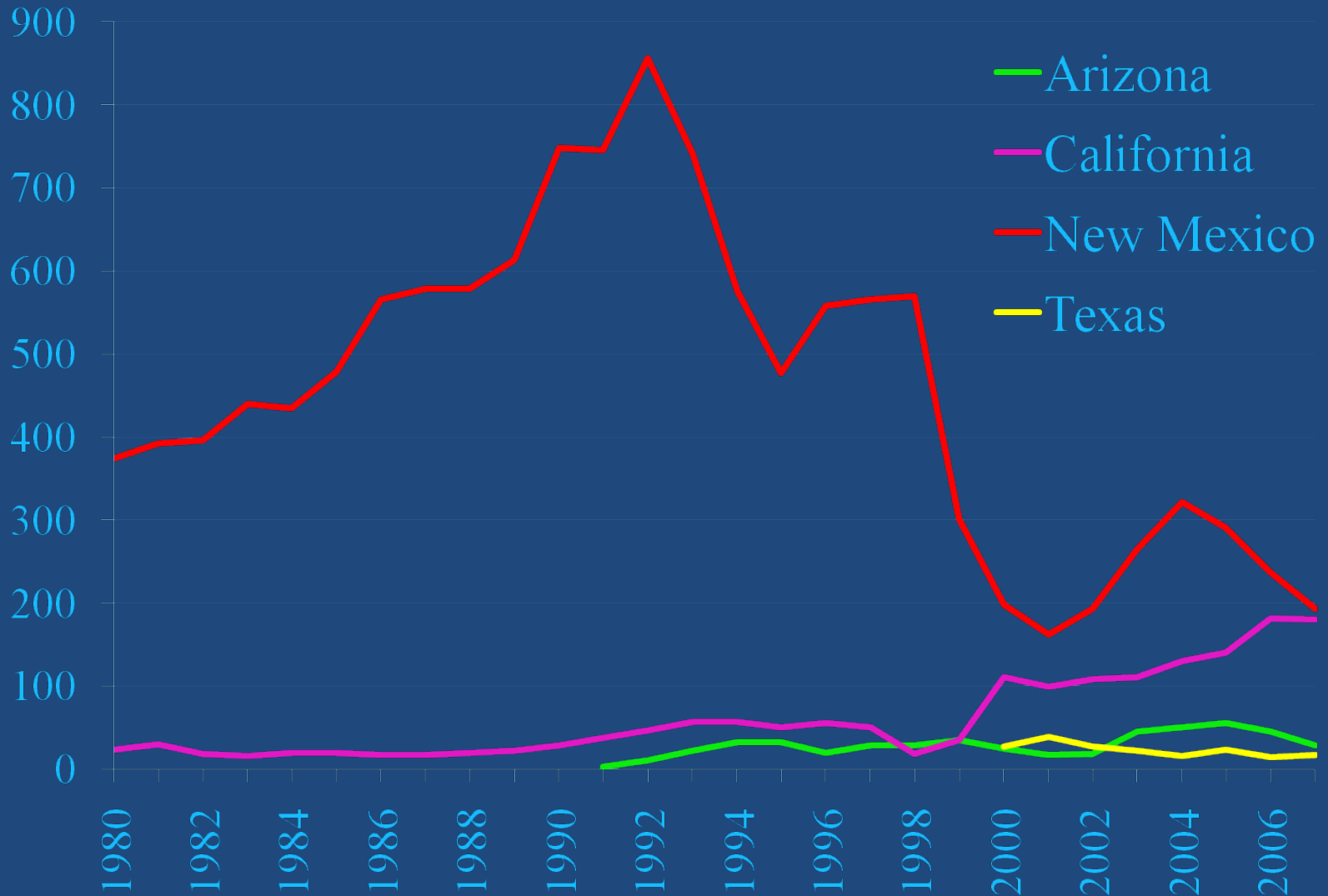| Summer	Fall
Cayenne	Aristotle Red Hot
Green hot	Heritage Red Mild
Green mild –	
Jalepeno	
Paprika	

Chile Varieties
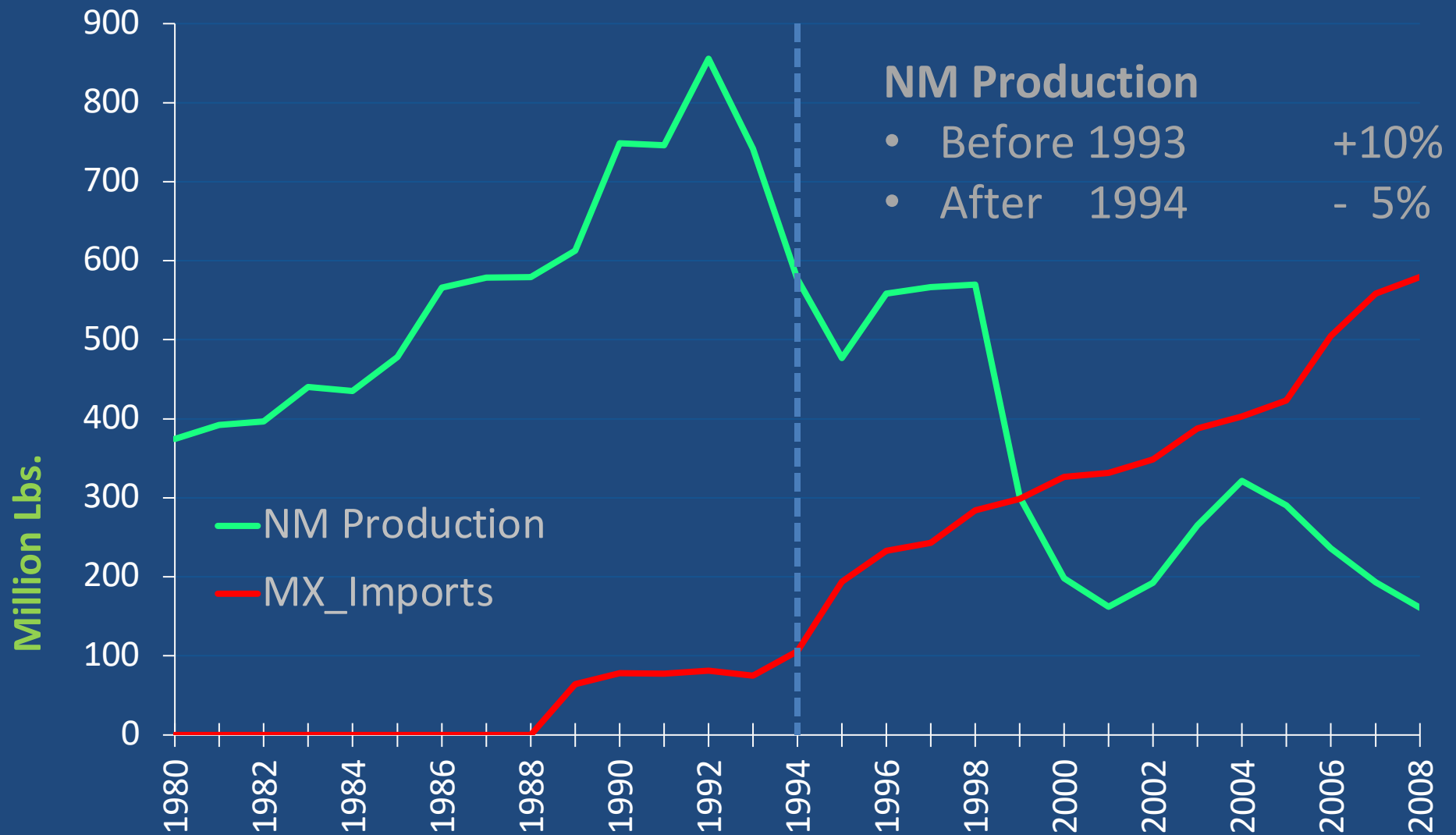Paprika

Chile Varieties
Habanero
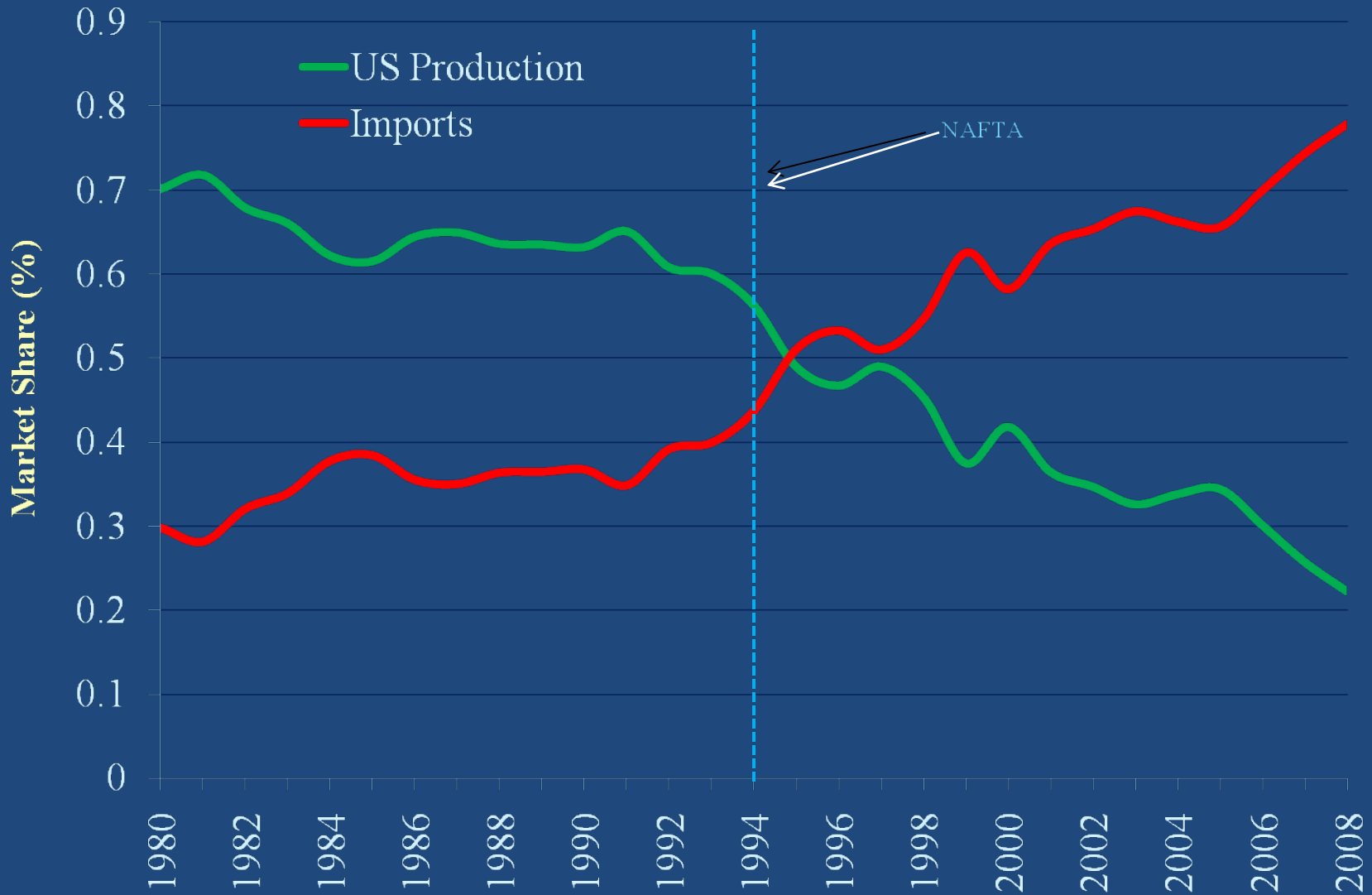Hot Jalepeno

Spring
Summer
Fall
Fall/Summer

MEXICO

U.S. Chile Production

NM Chile Production and Mexican Imports

U.S. Chile Market Share

Objectives

- Estimate empirical acreage function
- Examine the impact of rising costs, imports, and NAFTA on NM Production
- Extension:
  - Impact of crop improvement activities
  - Access the role of product development

Methodology

- Estimate an empirical acreage response system of following form

- Acreage = f(Net Return, Risk, Imports, Weather)

$$A_i = \alpha + \sum_{j=1}^{3} b_{ij} NR_j + \sum_{j=1}^{3} c_{ij} VNR_i + \sum_{i \neq j,1}^{3} d_{ij} CNR_{ij} + e_i W_i + f_i IM + gD + \varepsilon_i$$

where A_i refers to production acreage and i indexes for 3 competing crops (1=chile, 2=onion, and 3=hay). Variables NR, VNR, and CNR measure net return, variance, and covariance for these crops. W measures wealth, IM measures lagged chile imports, D reflects weather dummies, and ε is an error term.

Table 1. Basic Statistics for Variables Used in the Model

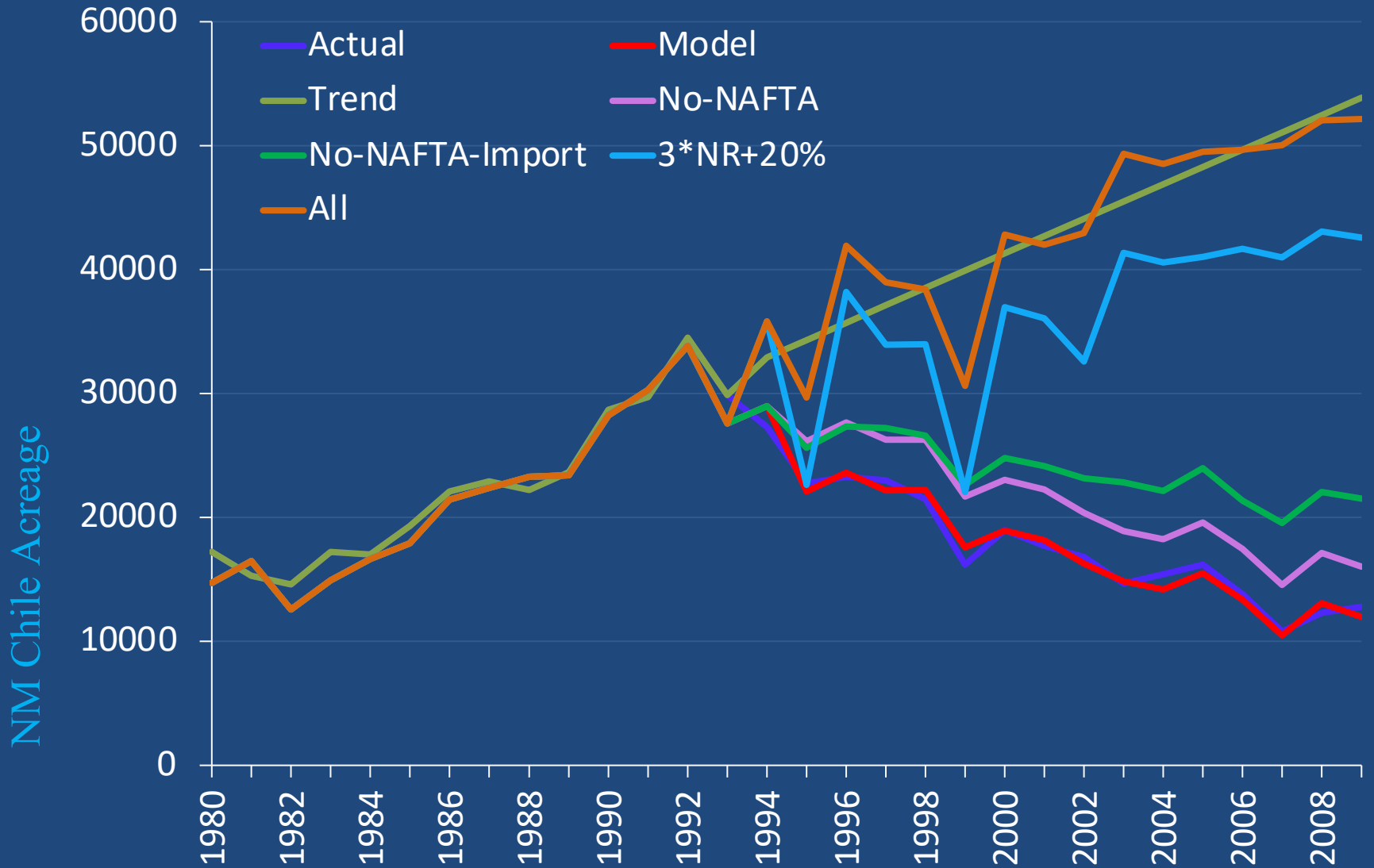| Variable	Mean	Std. Dev.	Minimum	Maximum
Chile Acreage	20,021.0	5,944.7	10,800.0	34,500.0
Onion Acreage	6,917.2	1,621.3	3,600.0	9,900.0
Hay Acreage	334,137.9	23,416.6	295,000.0	390,000.0
Chile Imports	701.7	408.5	209.0	1,491.1

Empirical Results

- The acreage response functions for three competing crops grown in New Mexico are reported in table 1.

- Chile and onions are complementary

- Chile and hay are substitute

- Risk is an important factor in acreage allocation decision

- Rising imports as well as NAFTA have negative impact on chile acreage in New Mexico

Table 2. SUR Estimators for Acreage Response Function

		Chile		Onions		Hay	
		Estimate	t-Value	Estimate	t-Value	Estimate	t-Value
Intercept		**21015.45****	18.5	**4725.69****	8.76	**317553.90****	23.64
Wealth Effect		0.07	1.01	-0.017	-0.86	0.15	0.2
Net Return							
Return	**Chile**	**12.009***	2.69	**2.097****	3.86	**-76.511****	-3.05
	Onion	**2.097****	3.86	**0.897****	3.11	-9.482	-1.57
	Hay	**-76.511****	-3.05	-9.482	-1.57	271.717	0.9
Variance							
	Chile	**0.028****	4.92	**0.005***	1.89	**-0.147***	-2.32
	Onion	**0.009****	4.85	**0.002***	2.58	-0.019	-1.06
	Hay	0.111	1.41	-0.041	-1.23	**2.279****	2.95
Covariance							
Risk	**Chile-Onion**	**-0.031****	-5.28	**-0.008***	-2.7	**0.228****	3.54
	Chile-Hay	-0.024	-0.71	0.014	0.91	0.007	0.02
	Onion-Hay	**-0.104****	-4.11	-0.011	-0.83	**-0.767****	-2.5
Chile Imports		**-9.590****	-7.51				
NAFTA		**-4078.08****	-3.08	308.66	0.8	**29662.15****	3.45
Adj-Rsquare		0.97		0.82		0.61	
System-Rsquare		0.95		0.95		0.95	
Durbin Watson		2.3		2.2		1.85	

**,* Denote significance at 1 and 5 percent level, respectively

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Conclusions

- Rising labor cost and skyrocketing imports had significant impact on NM chile production

- Development and adoption of labor saving technologies and innovative product development and marketing techniques are essential for revitalizing the New Mexican and U.S. chile industry.

Questions?