AJAE Supplemental Materials for: Agricultural Insurance Loss and Relationships to Climate across the Inland Pacific Northwest Region of the United States

The material contained herein is supplementary to the article named in the title and published in the American Journal of Agricultural Economics (AJAE).

January 2021

These supplemental materials provide exploratory data analyses and principal component analyses (PCA) for the Pacific Northwest (PNW) and the inland Pacific Northwest (iPNW), to better understand the combined effects of differing damage causes, commodities, counties, and years on overall insurance loss.

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Table 1: USDA RMA insurance loss records that were acquired from the USDA Risk Management Agency (RMA). Each record represents an individual insurance claim.

year	state	county	commodity	damagecause	month	acres	loss	lossperacre	cropyear
2001	ID	Ada	All Other Crops	Drought	SEP	17.000	153.00	9.000000	2001
2001	ID	Ada	All Other Crops	Heat	AUG	105.200	5249.00	49.895437	2001
2001	ID	Ada	All Other Crops	Freeze	APR	125.000	4500.00	36.000000	2001
2001	ID	Ada	All Other Crops	Wind/Excess Wind	MAY	50.000	1800.00	36.000000	2001
2001	ID	Ada	All Other Crops	Wind/Excess Wind	APR	92.500	3330.00	36.000000	2001
2001	ID	Bannock	WHEAT	Drought	AUG	133.000	1212.00	9.112782	2001
2001	ID	Bannock	WHEAT	Drought	SEP	777.520	24807.00	31.905289	2001
2001	ID	Bannock	WHEAT	Drought	JUL	3529.754	54726.46	15.504327	2001
2001	ID	Bannock	WHEAT	Heat	JUL	19.796	2371.60	119.801980	2001

Table 2: USDA RMA aggregated dataset derived from the original insurance loss files. Here we have summarized claims by year, county, commodity, and damage cause. Each unique combination is summarized, which echos the total summarized loss, the number of claims, the total summarized acreage, loss per acre, loss per claim, and acres per claim. This dataset was the basis for our data examination.

year	state	county	commodity	damagecause	loss	count	acres	lossperacre	lossperclaim	acresperclaim
2014	ID	Ada	All Other Crops	Area Plan Crops Only	1398	1	0	0.0000000	1398.0	0
2015	ID	Ada	All Other Crops	Area Plan Crops Only	11810	1	0	0.0000000	11810.0	0
2008	OR	Baker	All Other Crops	Area Plan Crops Only	15292	2	5482	2.7894929	7646.0	2741
2010	OR	Baker	All Other Crops	Area Plan Crops Only	1819	2	2282	0.7971078	909.5	1141
2009	ID	Bannock	All Other Crops	Area Plan Crops Only	2284	1	600	3.8066667	2284.0	600
2008	ID	Bear Lake	All Other Crops	Area Plan Crops Only	8102	1	2468	3.2828201	8102.0	2468
2012	ID	Bear Lake	All Other Crops	Area Plan Crops Only	7459	1	2468	3.0222853	7459.0	2468
2010	ID	Bingham	All Other Crops	Area Plan Crops Only	4197	1	192	21.8593750	4197.0	192
2011	ID	Bingham	All Other Crops	Area Plan Crops Only	7769	1	240	32.3708333	7769.0	240
2012	ID	Bingham	All Other Crops	Area Plan Crops Only	6786	1	168	40.3928571	6786.0	168

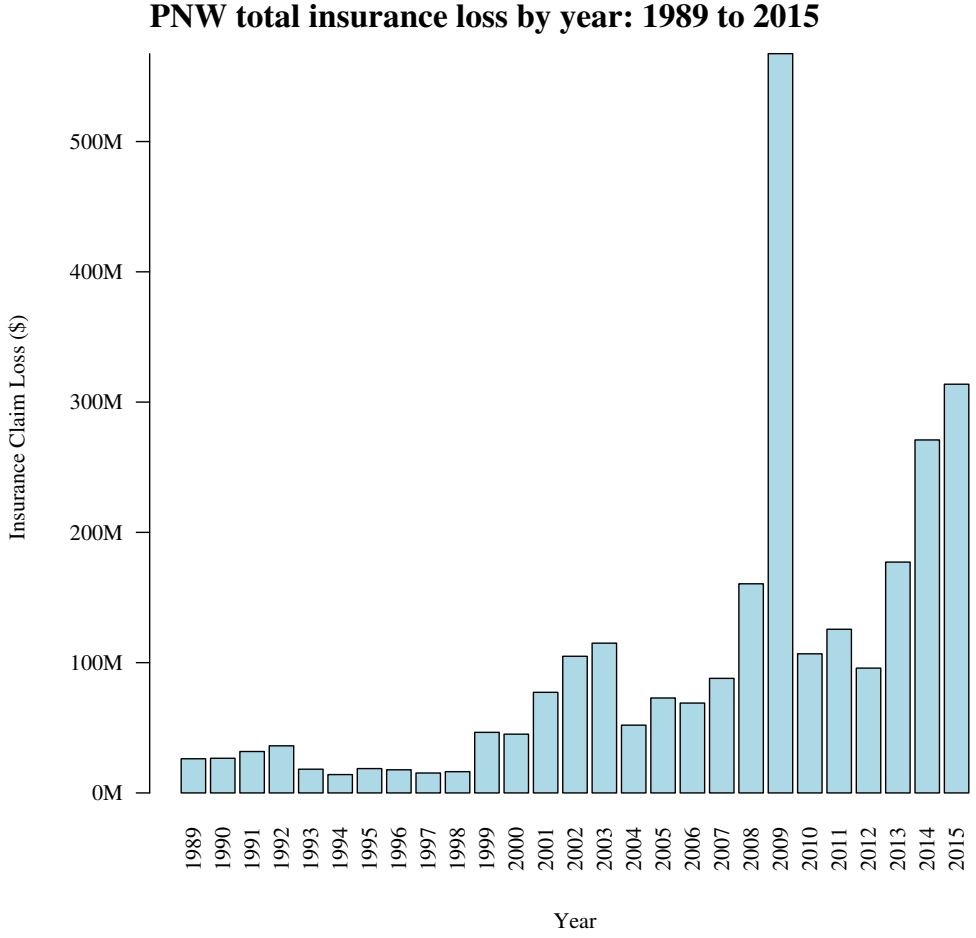


Figure 1: Pacific Northwest agricultural insurance loss by year, 1989 to 2015

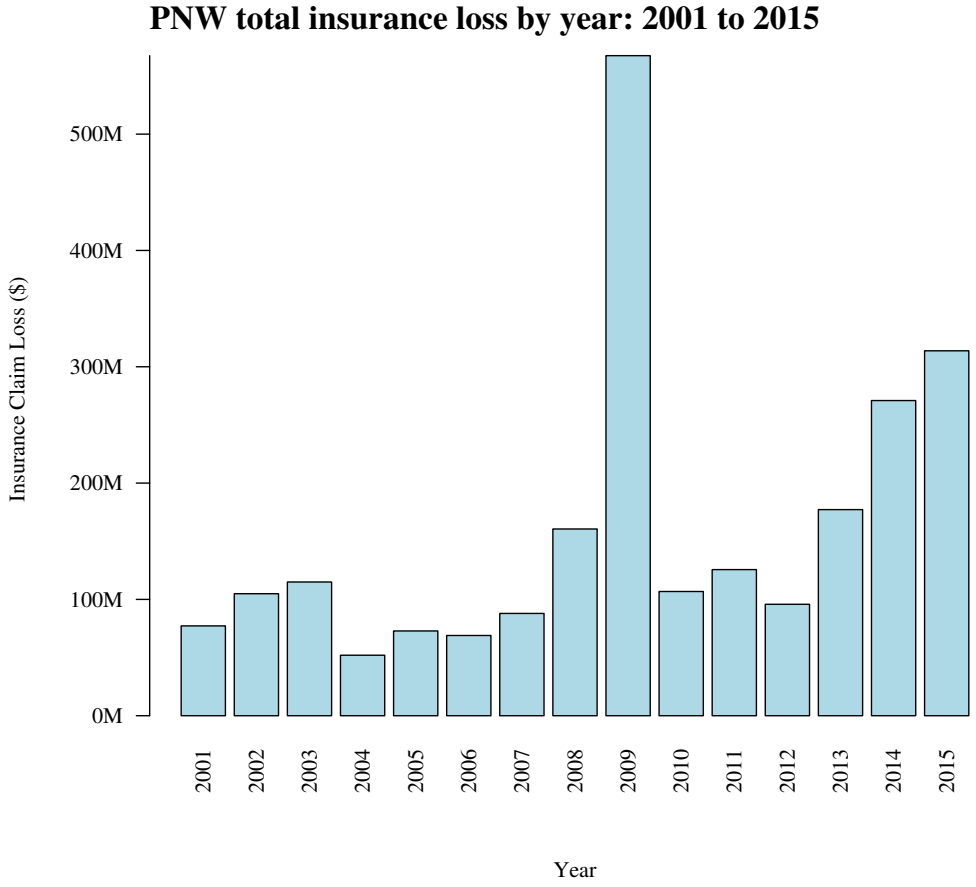


Figure 2: Pacific Northwest agricultural insurance loss by year: 2001 to 2015

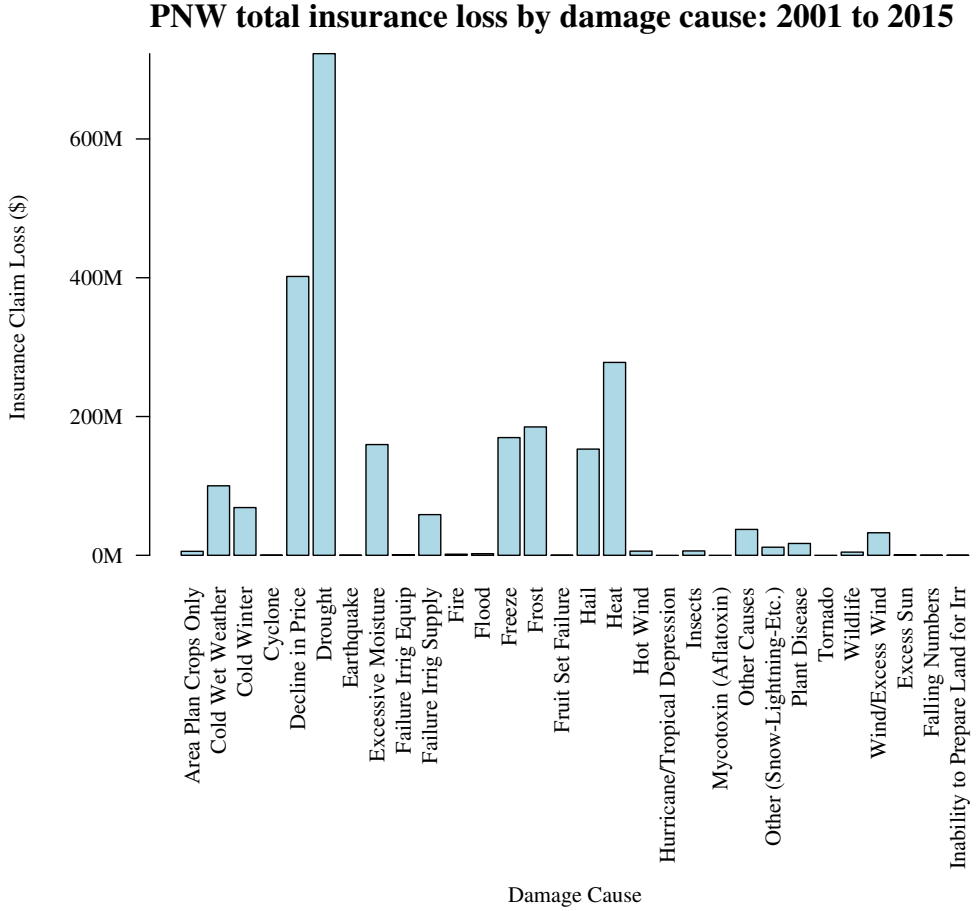


Figure 3: Pacific Northwest agricultural insurance loss by damage cause: 2001 to 2015.

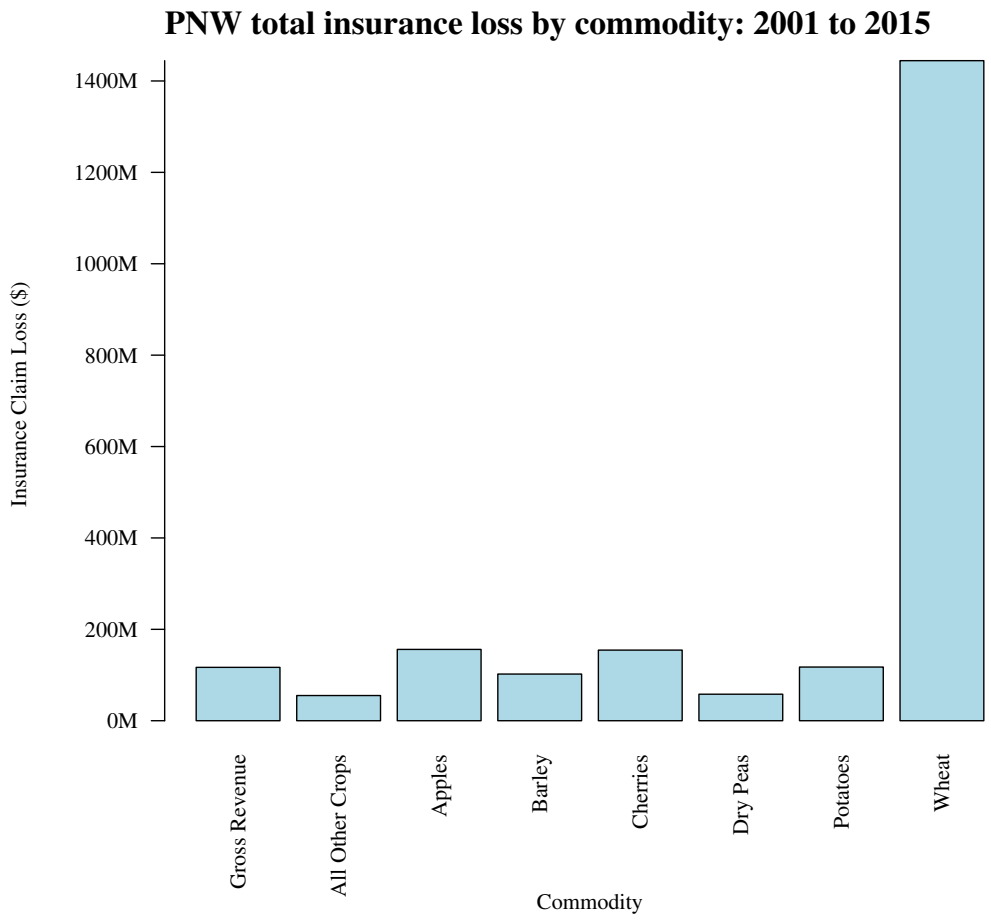


Figure 4: Pacific Northwest agricultural insurance loss by commodity: 2001 to 2015.

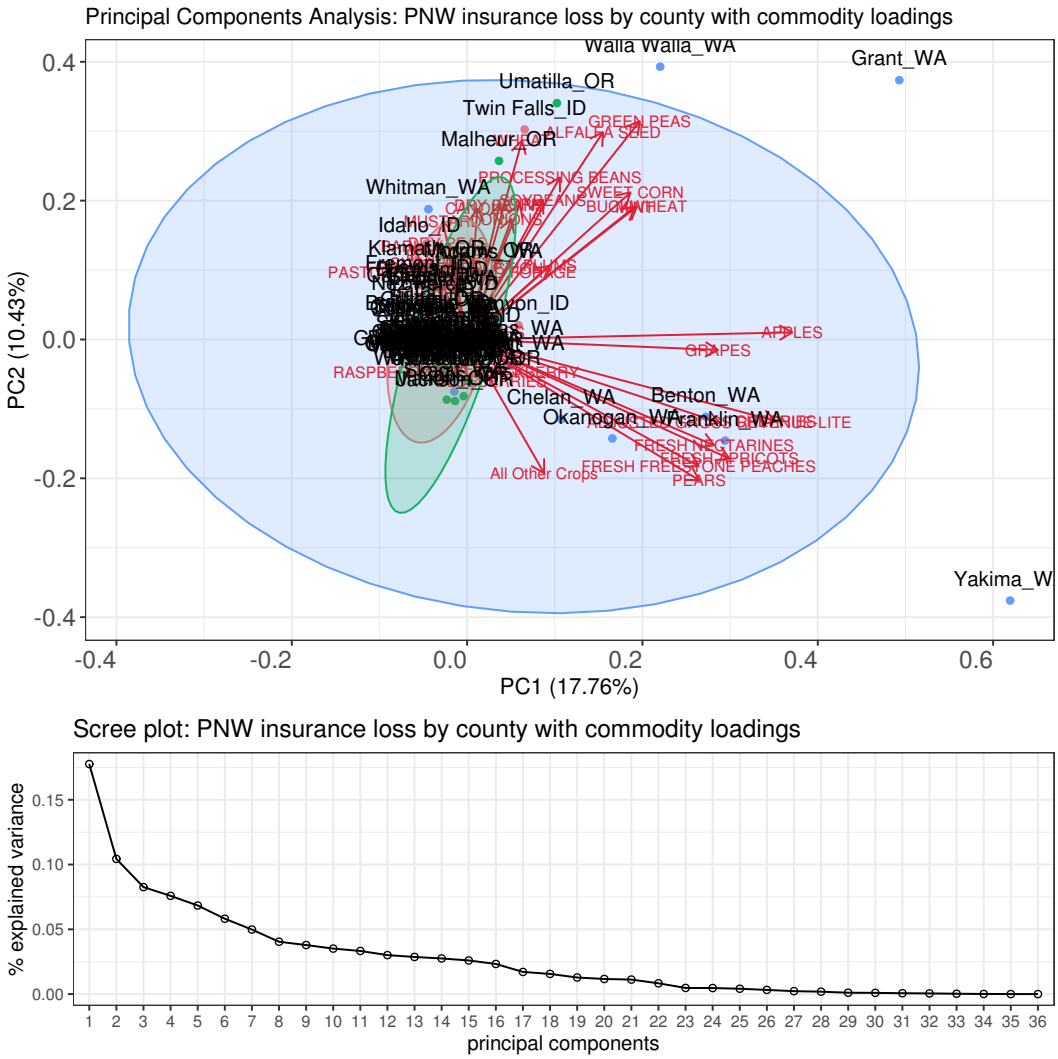


Figure 5: Top panel: Biplot of principal components for insurance loss for the entire PNW, by county, with commodity as the factor loadings. Bottom panel: Scree plot. Data from 2001 to 2015 is used.

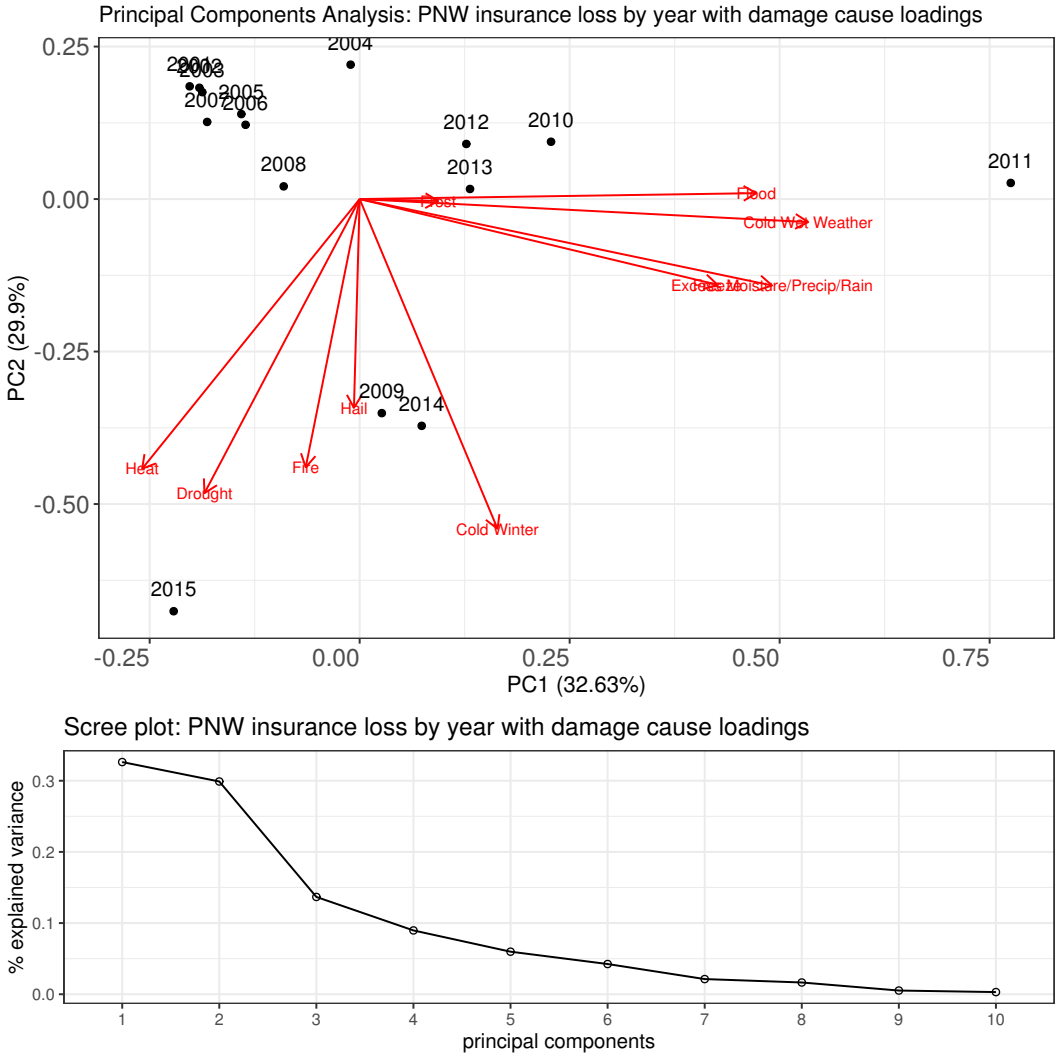
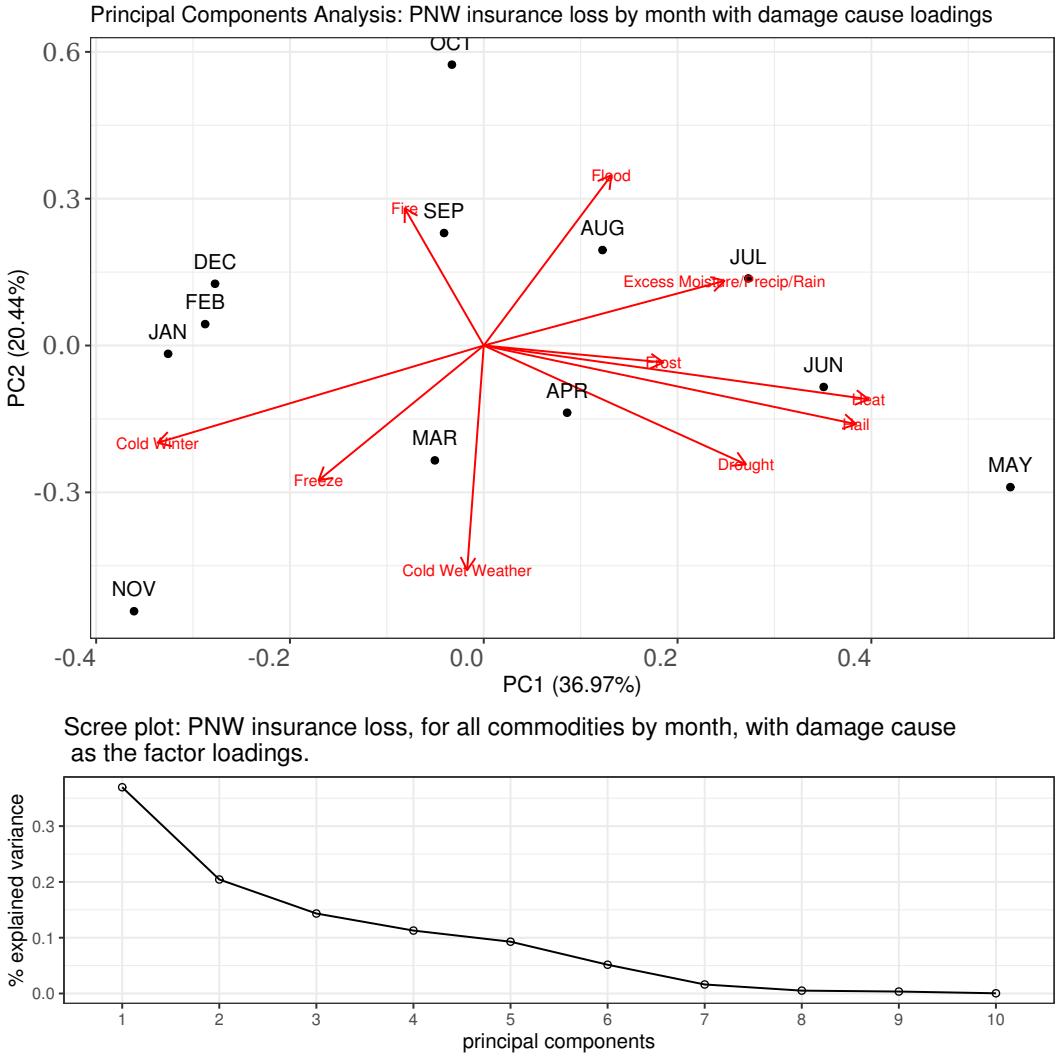


Figure 6: Top panel: biplot of principal components of insurance loss, for the entire PNW, for all commodities by year, with damage cause as the factor loadings. Bottom panel: Scree plot. Data from 2001 to 2015 is used.



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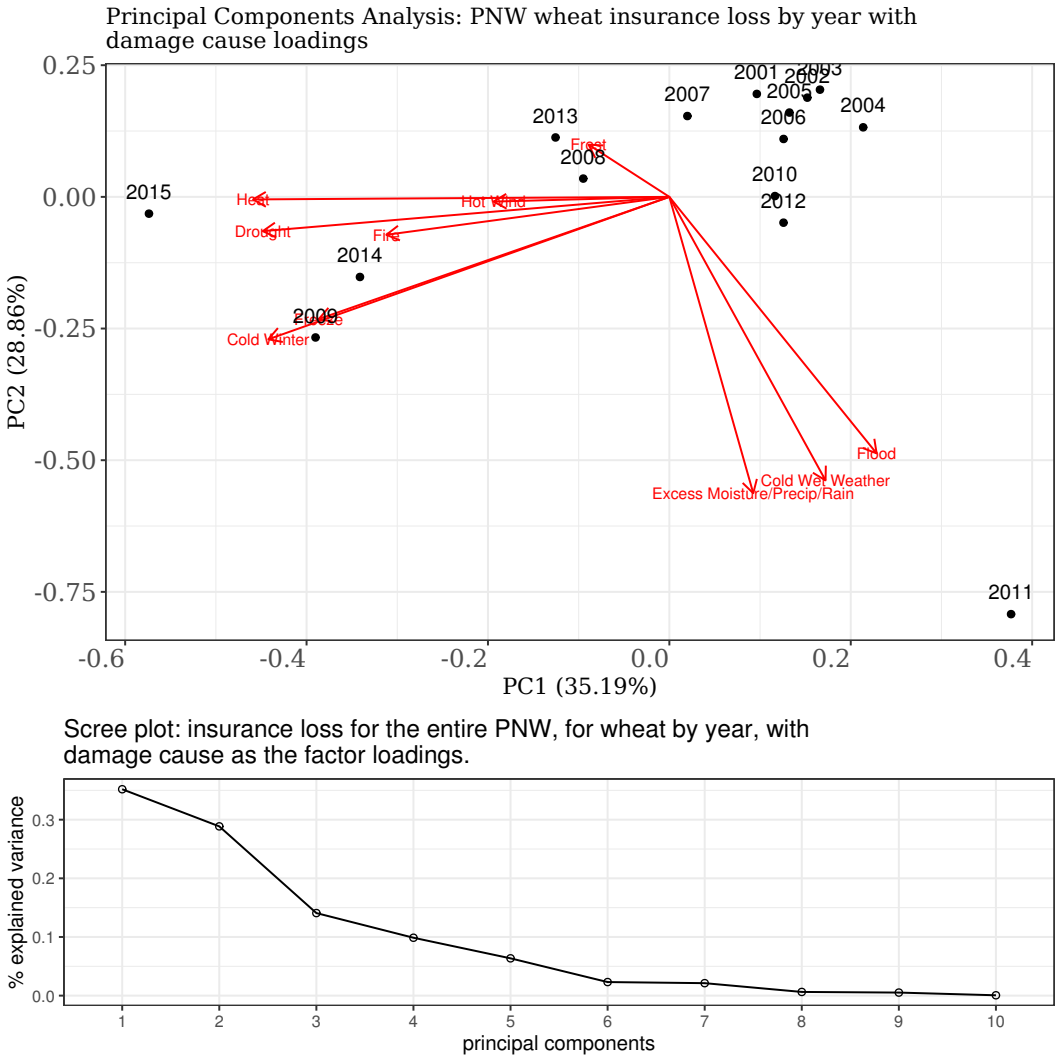


Figure 8: Top panel: biplot of insurance loss for the entire PNW, for wheat by year, with damage cause as the factor loadings. Bottom panel: Scree plot. Data from 2001 is 2015 is used.

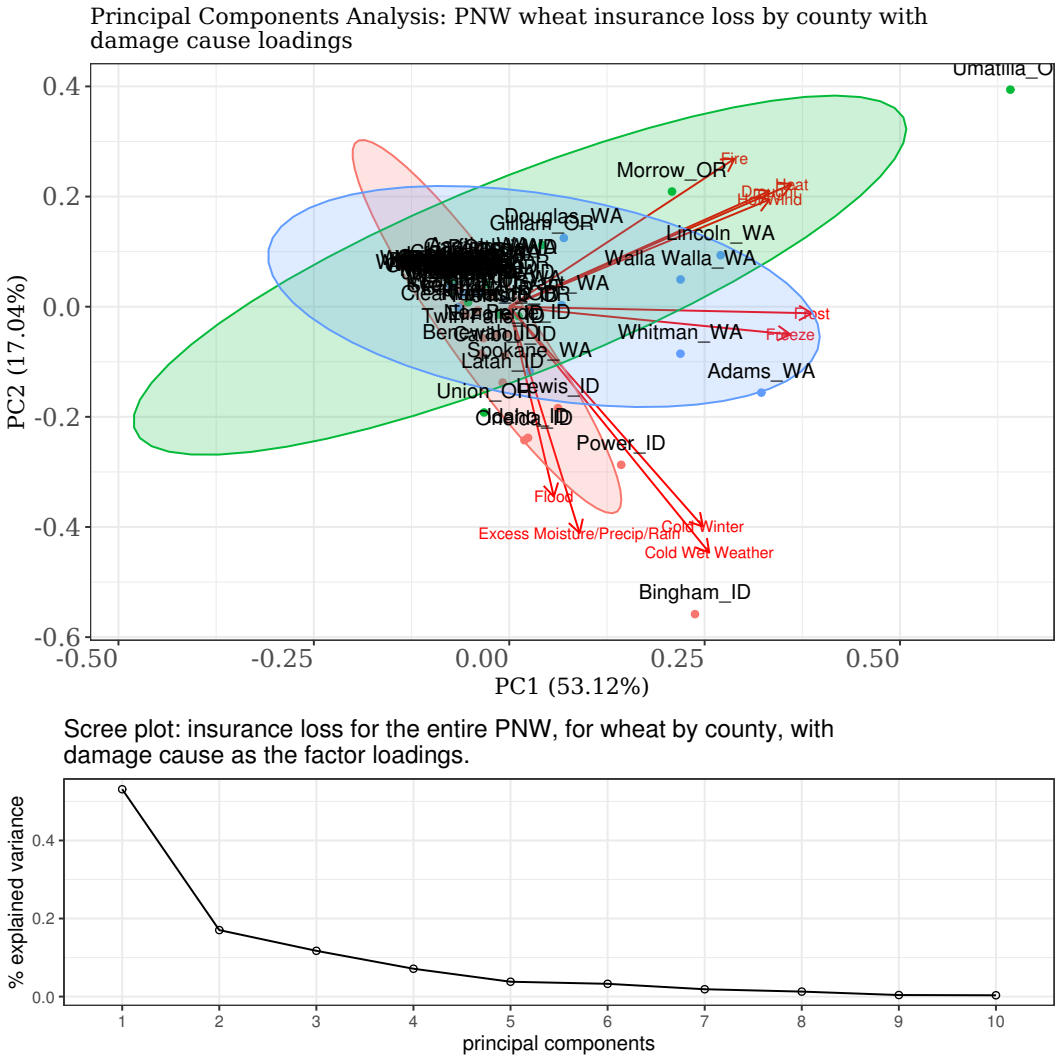


Figure 9: Top panel: biplot of insurance loss for the entire PNW, for wheat by county, with damage cause as the factor loadings. Bottom panel: Scree plot. Data from 2001 is 2015 is used.

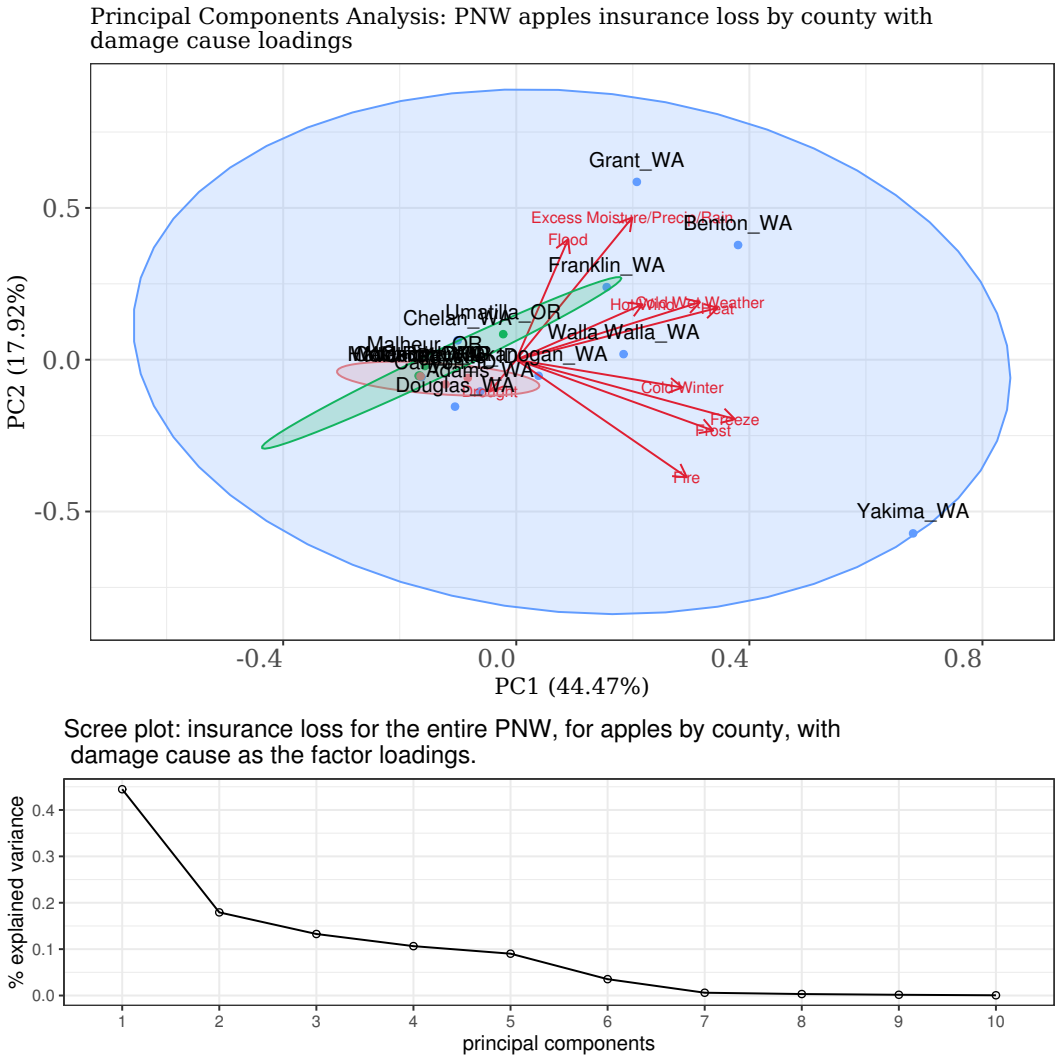
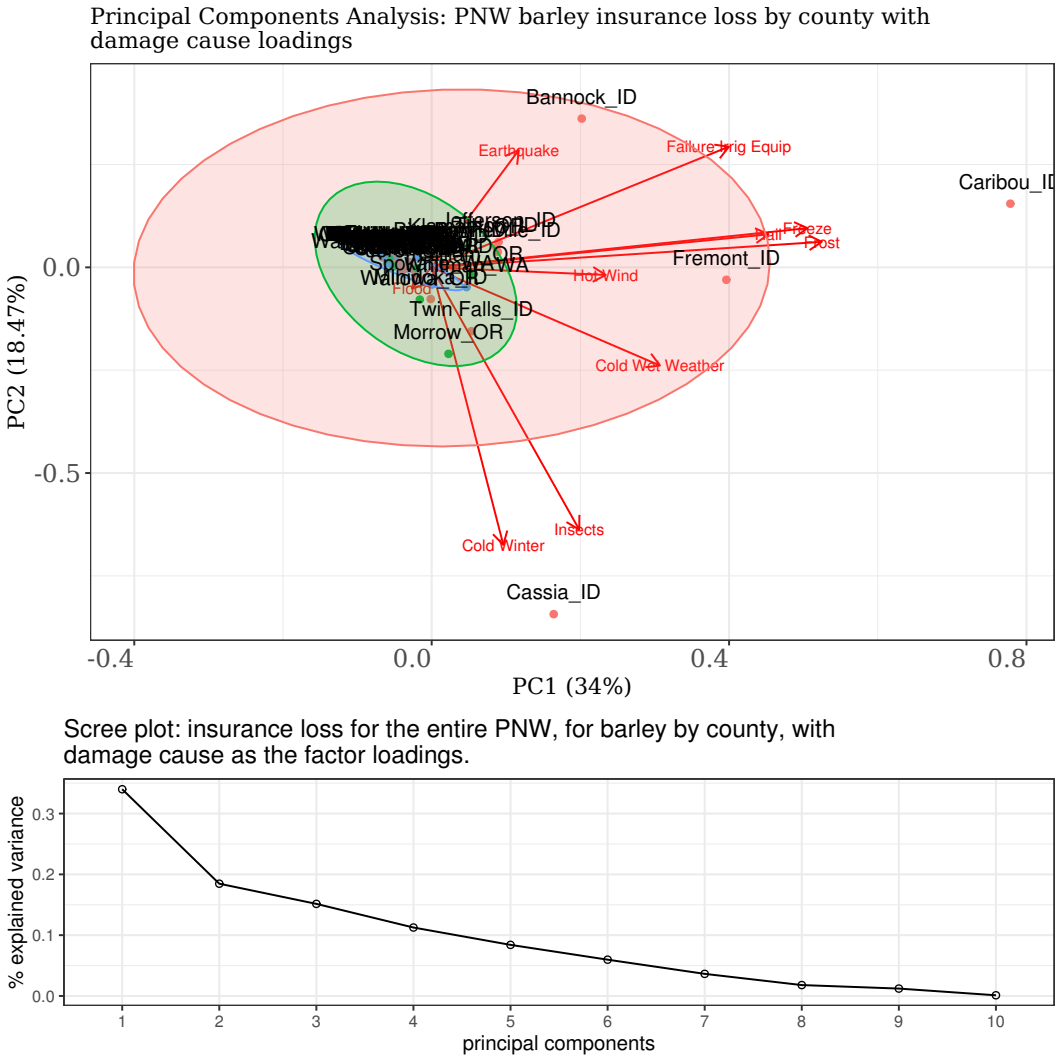


Figure 10: Top panel: biplot of insurance loss for the entire PNW, for apples by county, with damage cause as the factor loadings. Bottom panel: Scree plot. Data from 2001 is 2015 is used.



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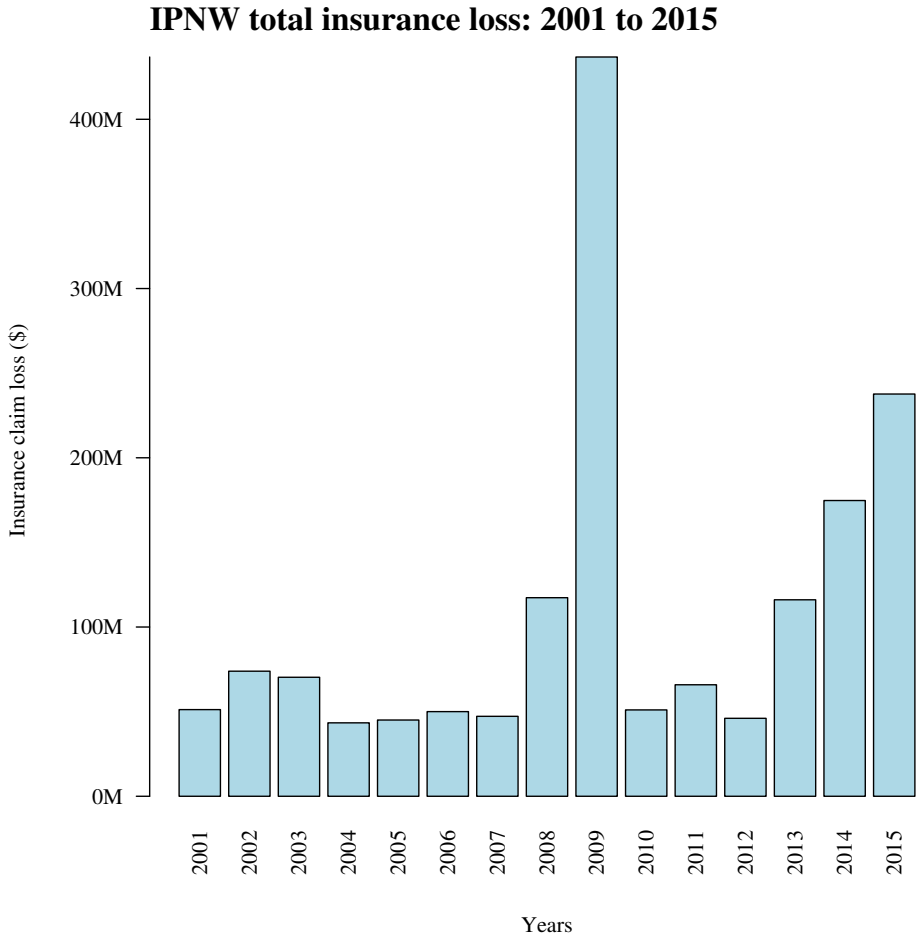


Figure 12: Inland Pacific Northwest agricultural insurance loss by year, 2001 to 2015.

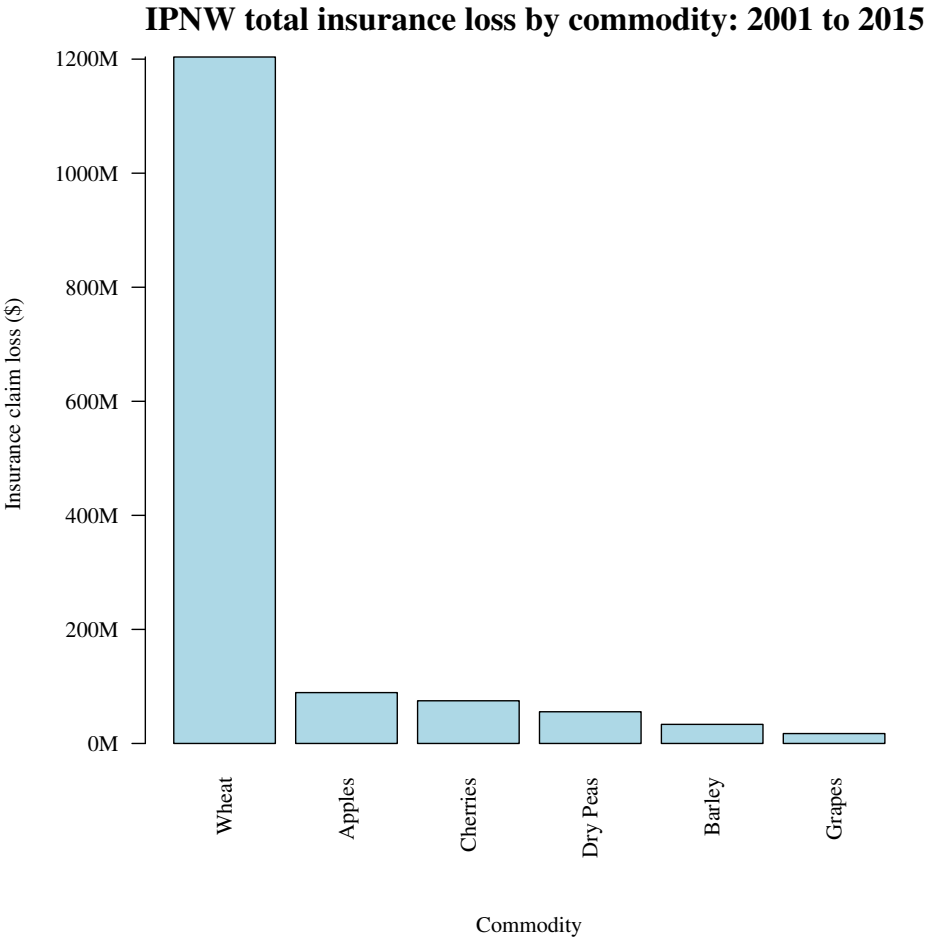


Figure 13: Inland Pacific Northwest agricultural insurance loss by commodity, 2001 to 2015.

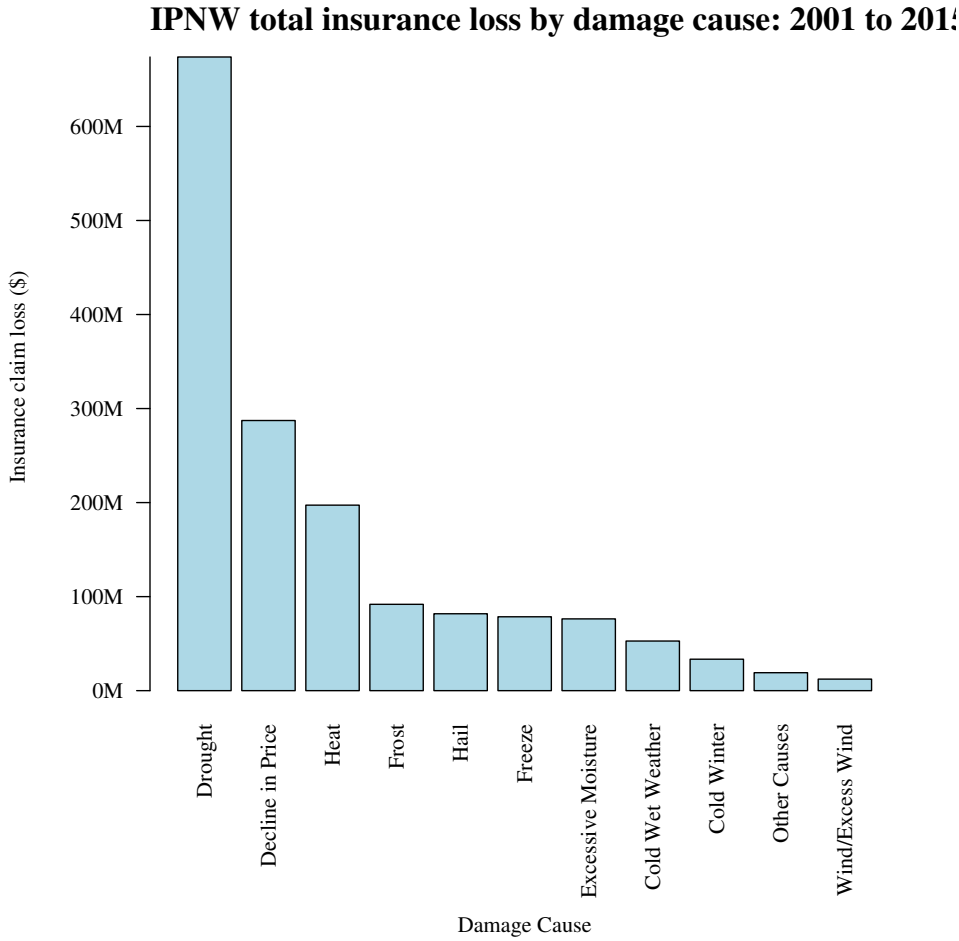


Figure 14: Inland Pacific Northwest agricultural insurance loss by damage cause, 2001 to 2015.

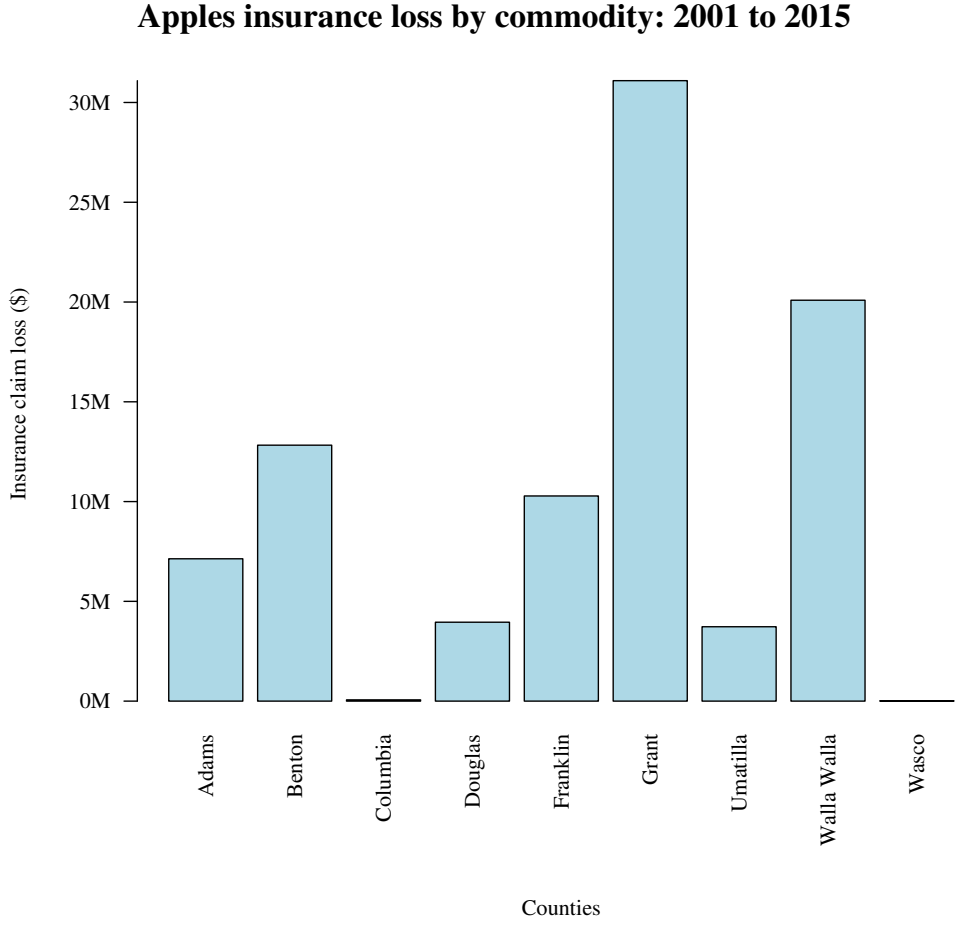


Figure 15: Inland Pacific Northwest agricultural insurance loss for apples, by county, 2001 to 2015.

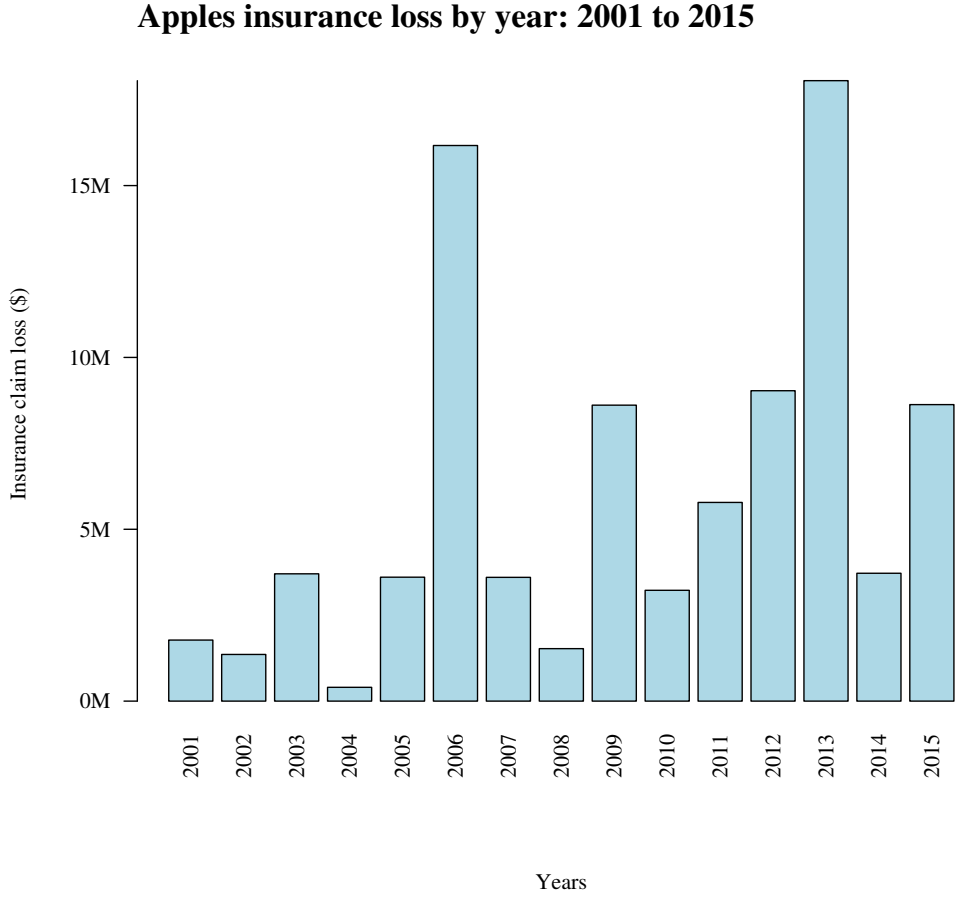


Figure 16: nland Pacific Northwest agricultural insurance loss for apples, by year, 2001 to 2015.

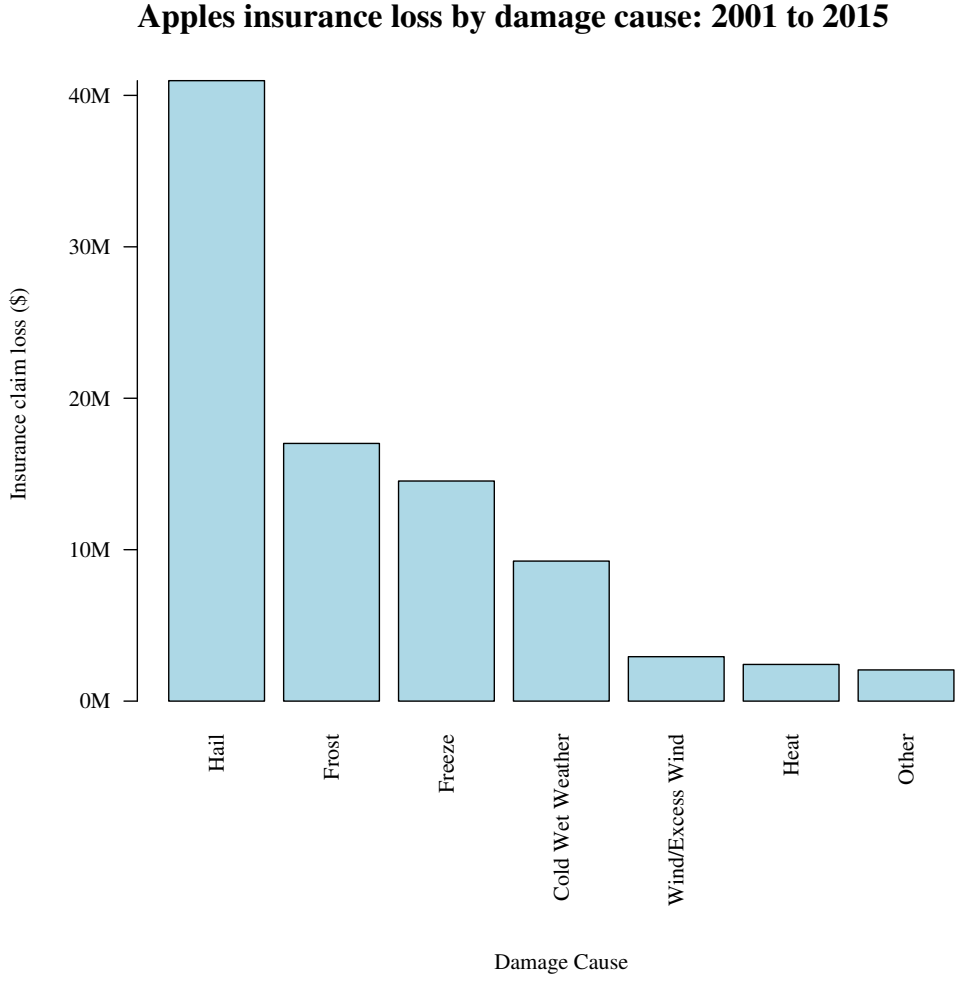


Figure 17: Inland Pacific Northwest agricultural insurance loss for apples, by damage cause, 2001 to 2015.

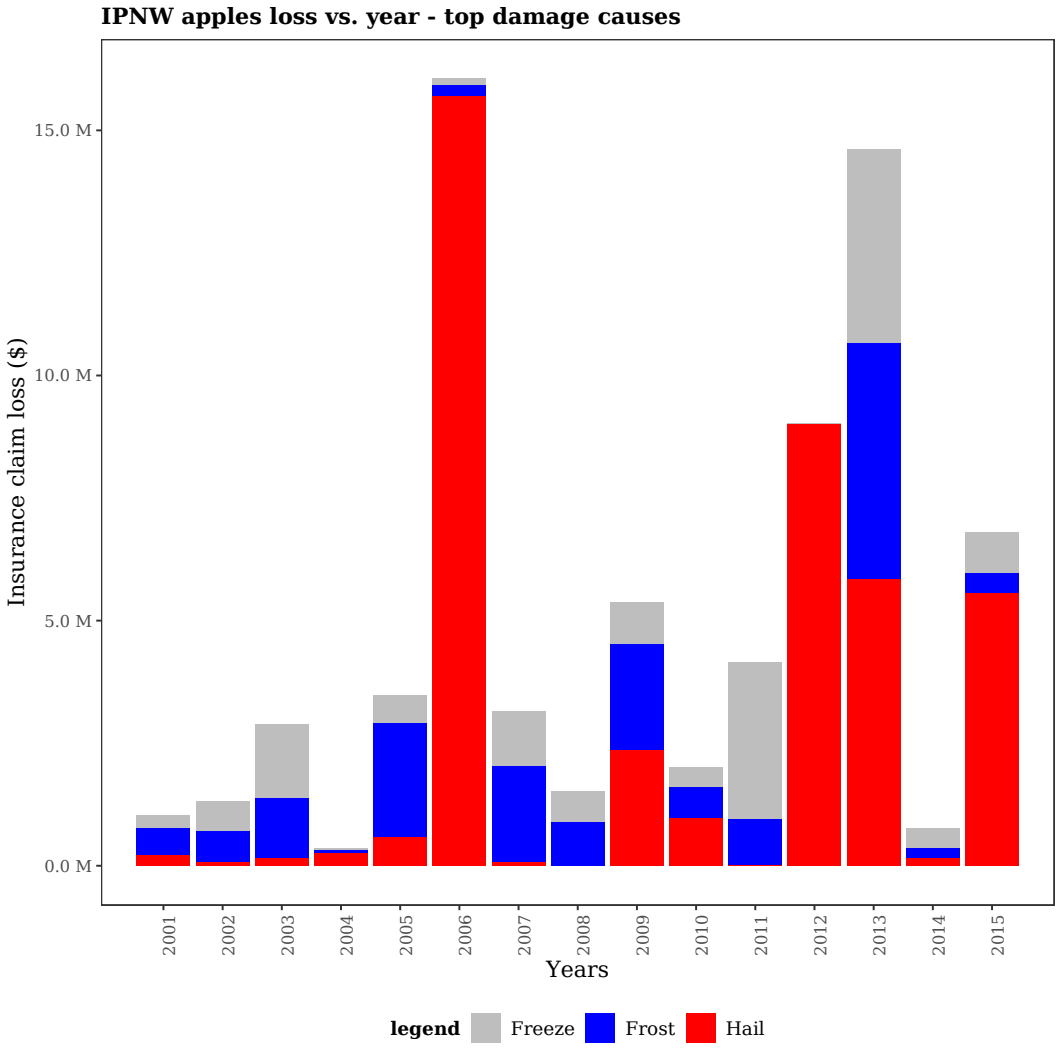


Figure 18: Inland Pacific Northwest stacked barplot of annual apples agricultural insurance loss, by top damage causes, 2001 to 2015.

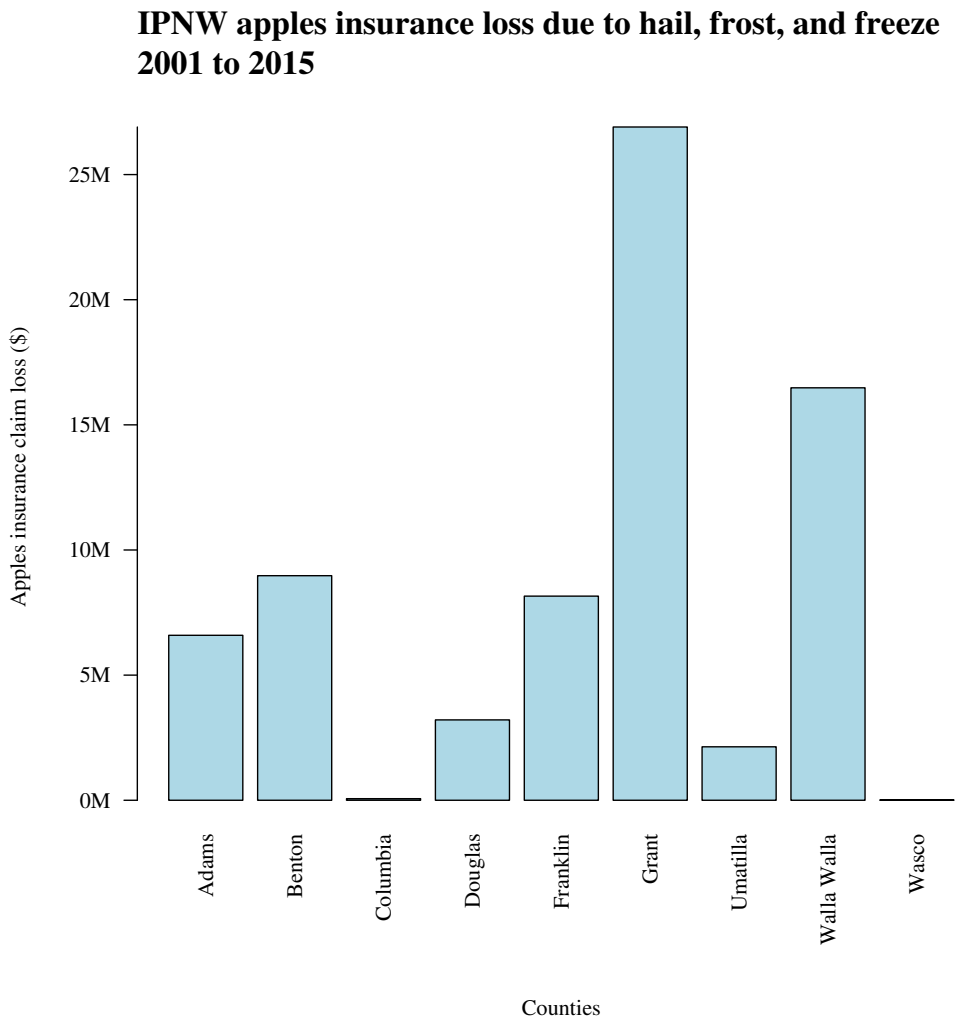


Figure 19: Inland Pacific Northwest agricultural insurance loss due to hail, frost, and freeze, for apples, by county, 2001 to 2015.

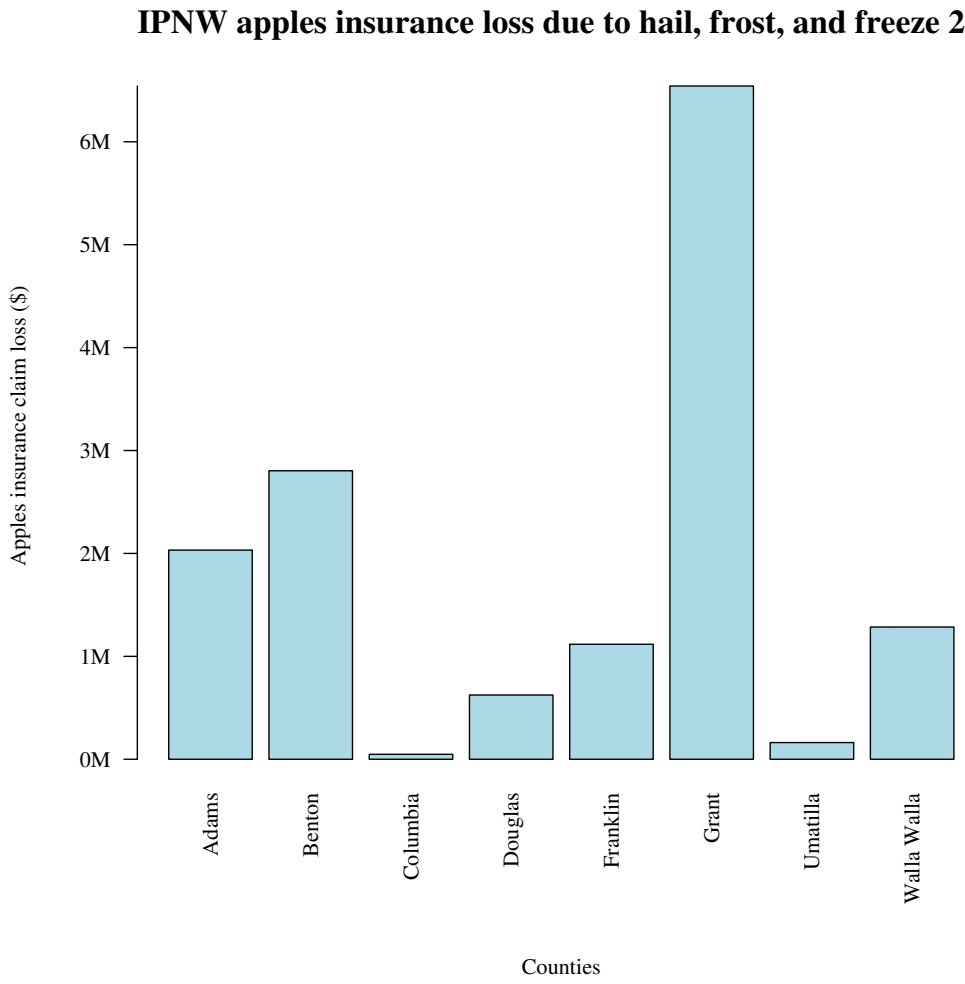


Figure 20: Inland Pacific Northwest agricultural insurance loss due to hail, frost, and freeze, for apples, by county, 2013.

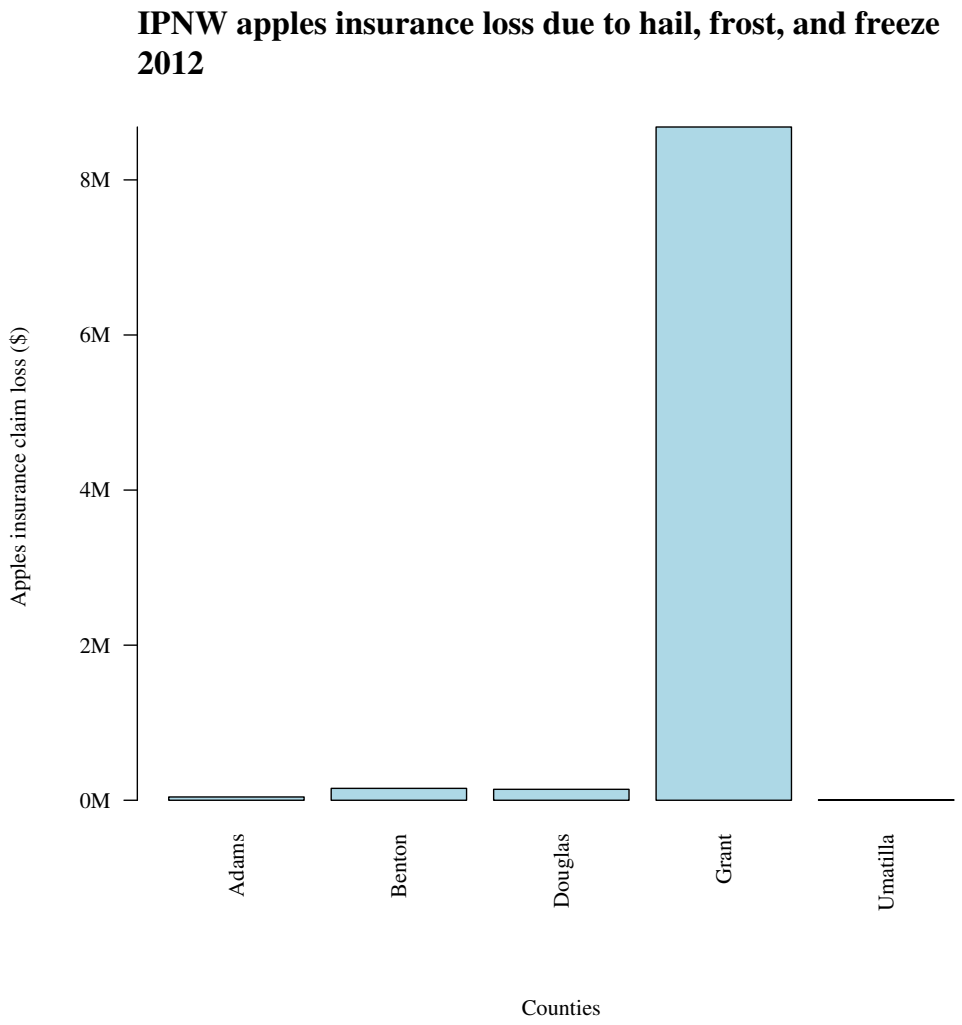


Figure 21: Inland Pacific Northwest agricultural insurance loss due to hail, frost, and freeze, for apples, by county, 2012.

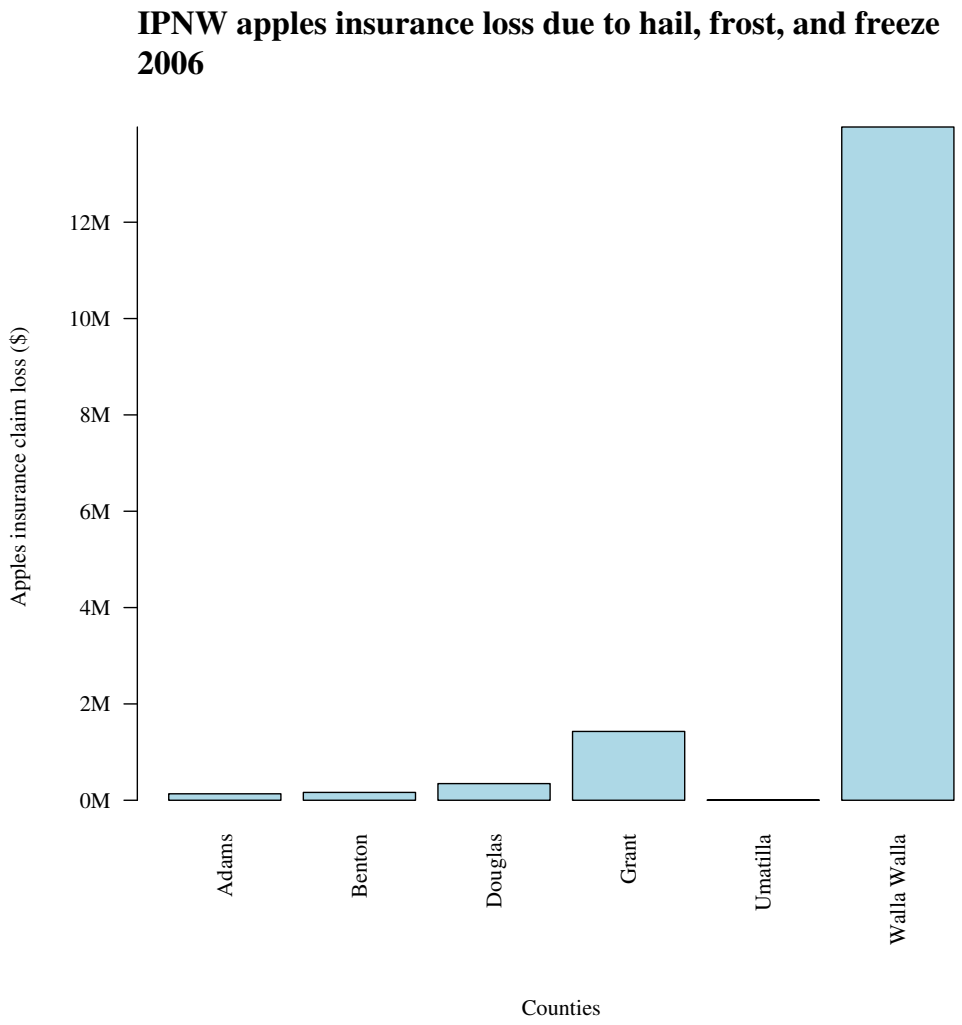


Figure 22: Inland Pacific Northwest agricultural insurance loss due to hail, frost, and freeze, for apples, by county, 2006.

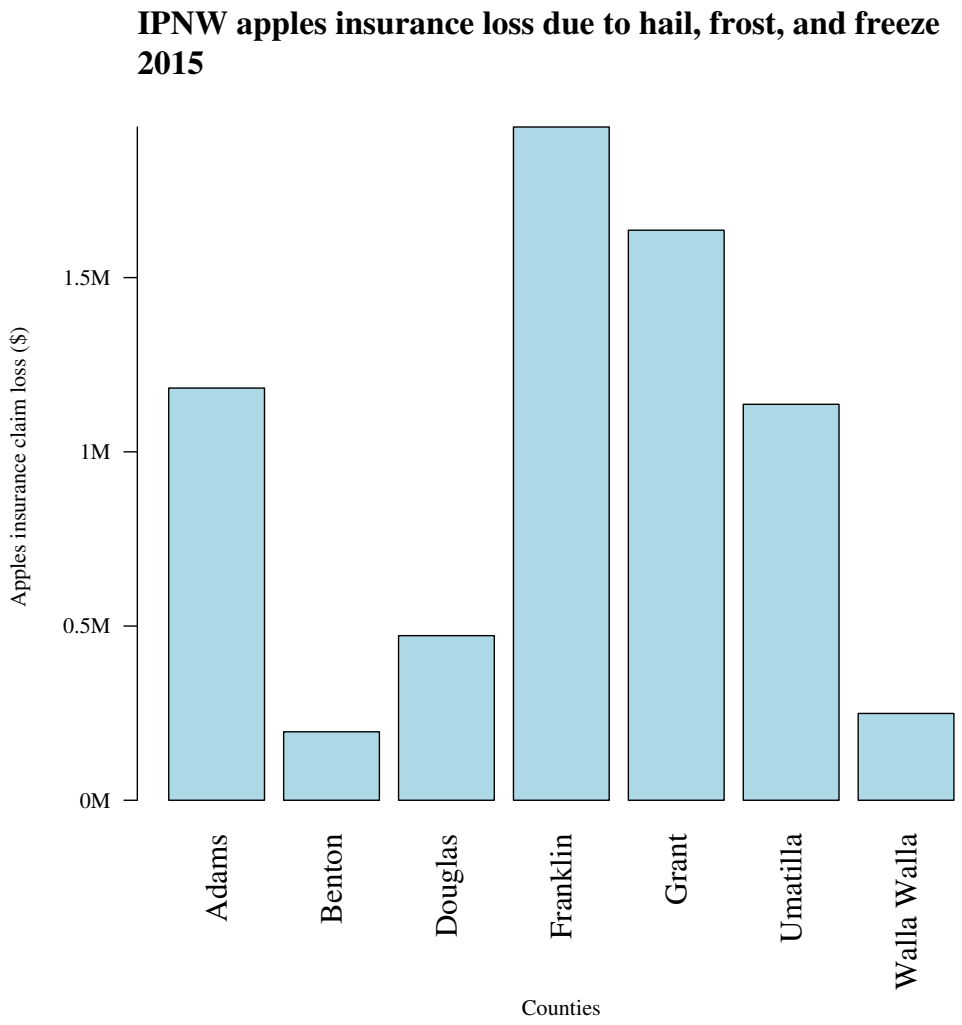
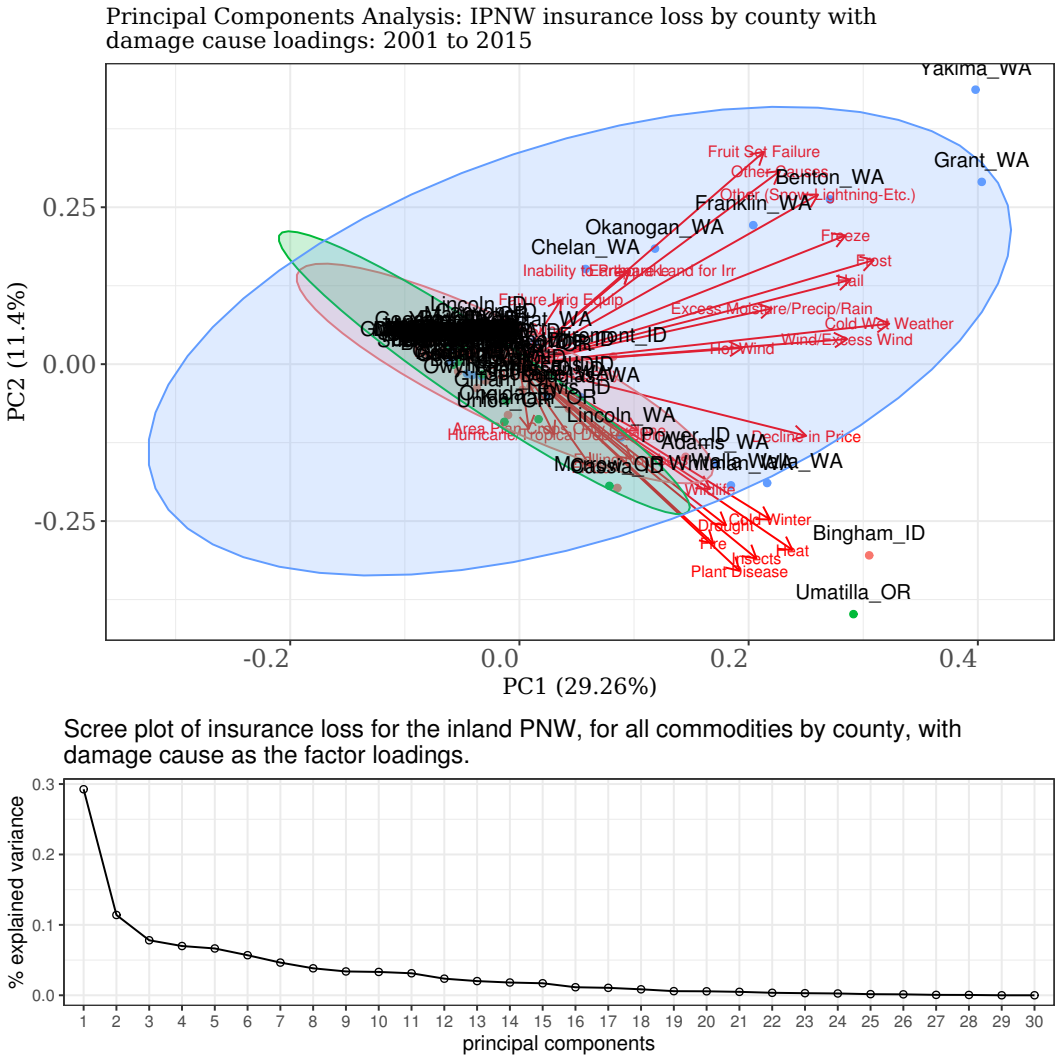


Figure 23: Inland Pacific Northwest agricultural insurance loss due to hail, frost, and freeze, for apples, by county, 2015.



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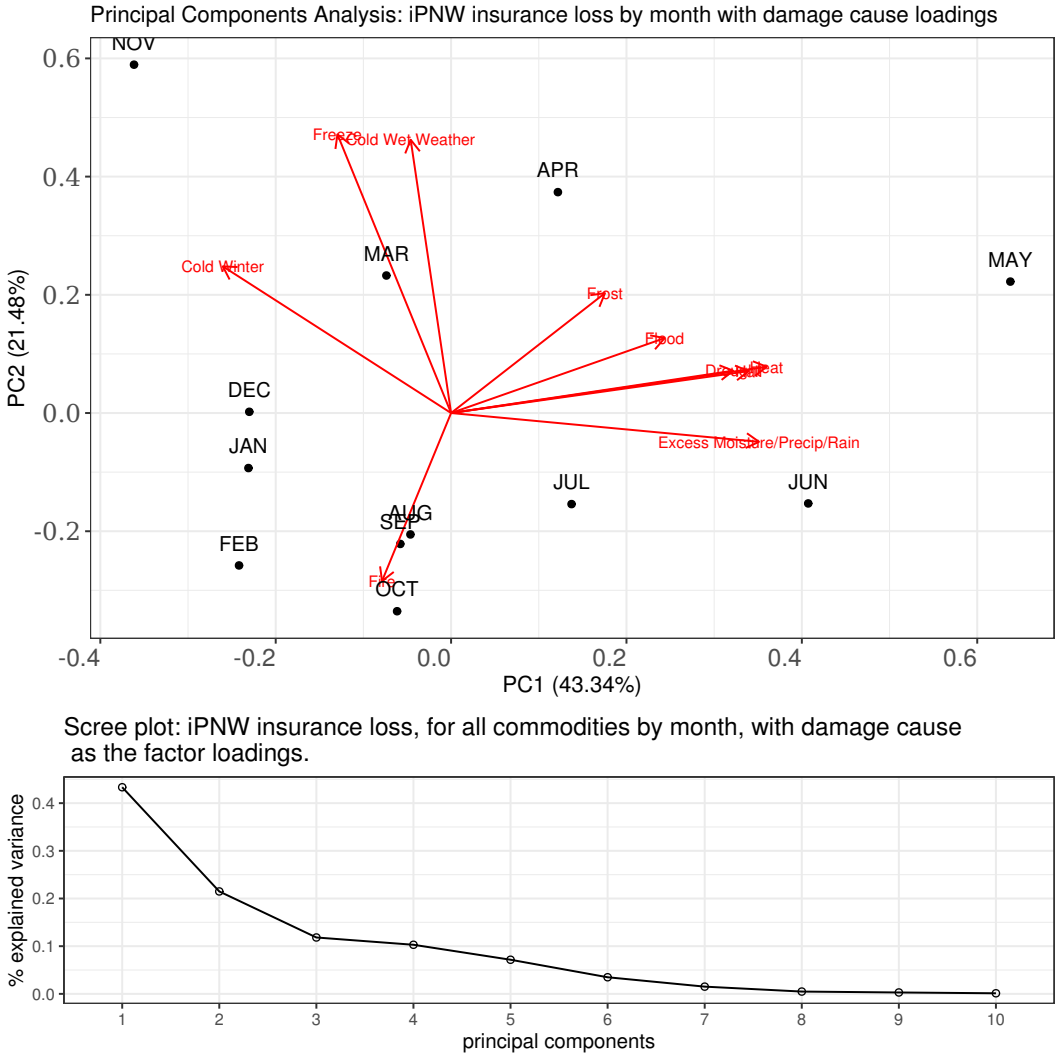
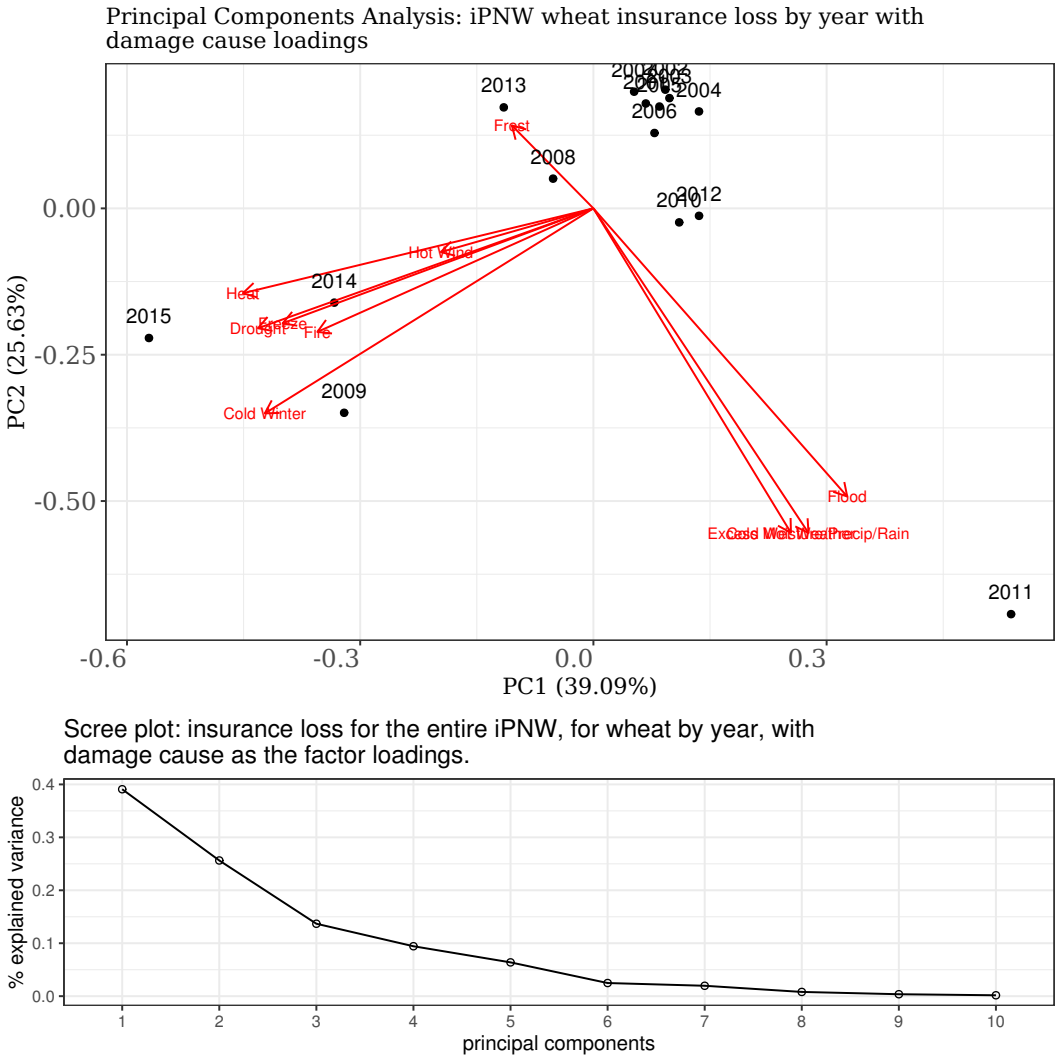


Figure 25: Top panel: biplot of principal components for insurance loss for the entire iPNW, for all commodities by month, with damage cause as the factor loadings. Bottom panel: Scree plot Data from 2001 is 2015 is used.



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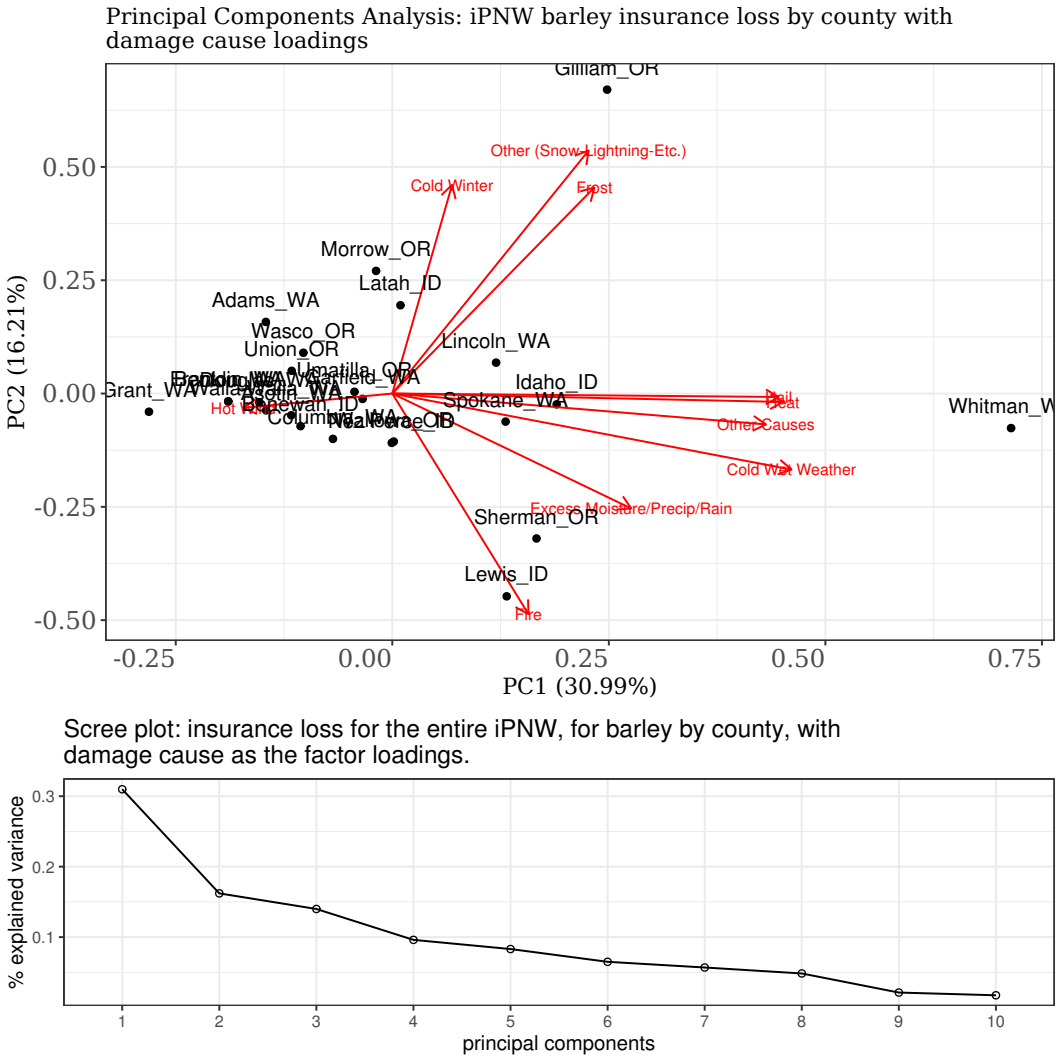

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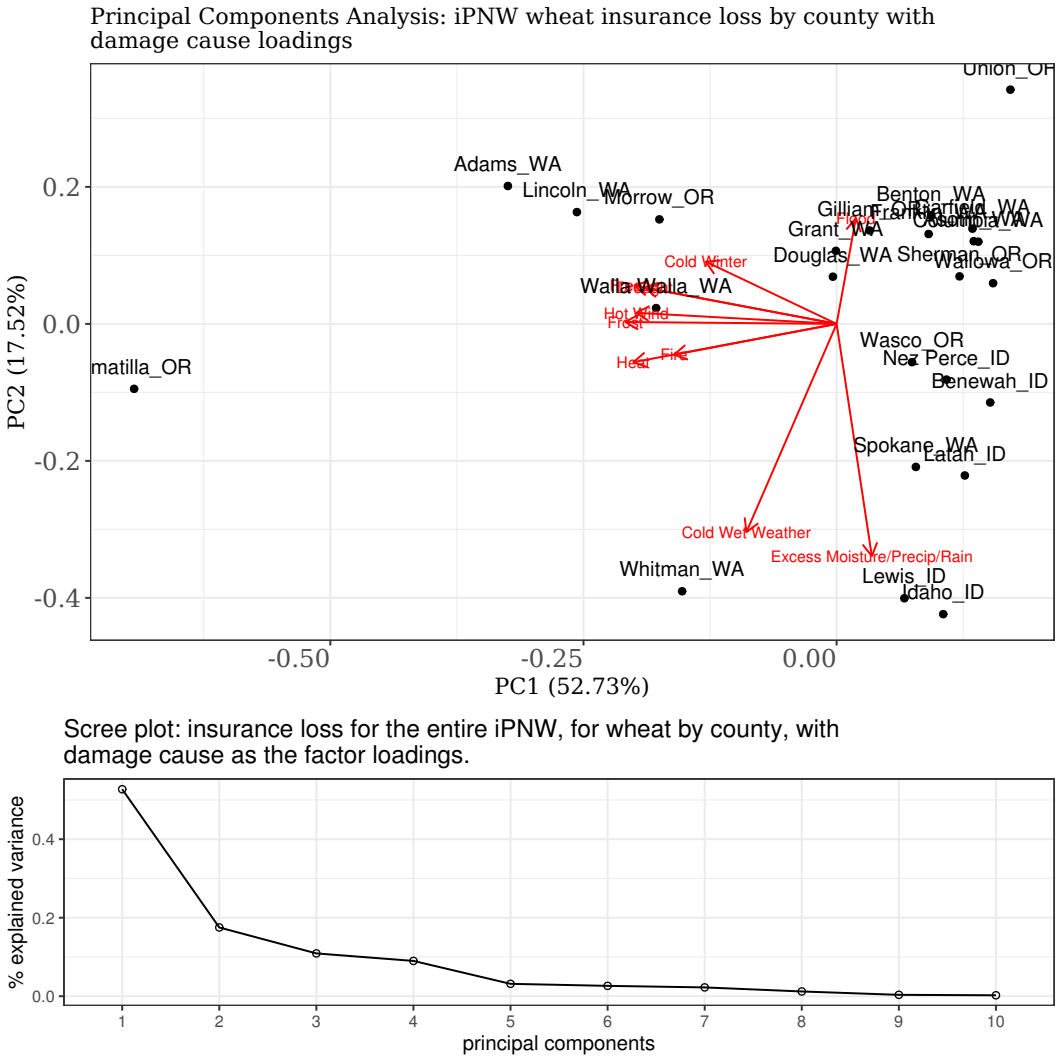

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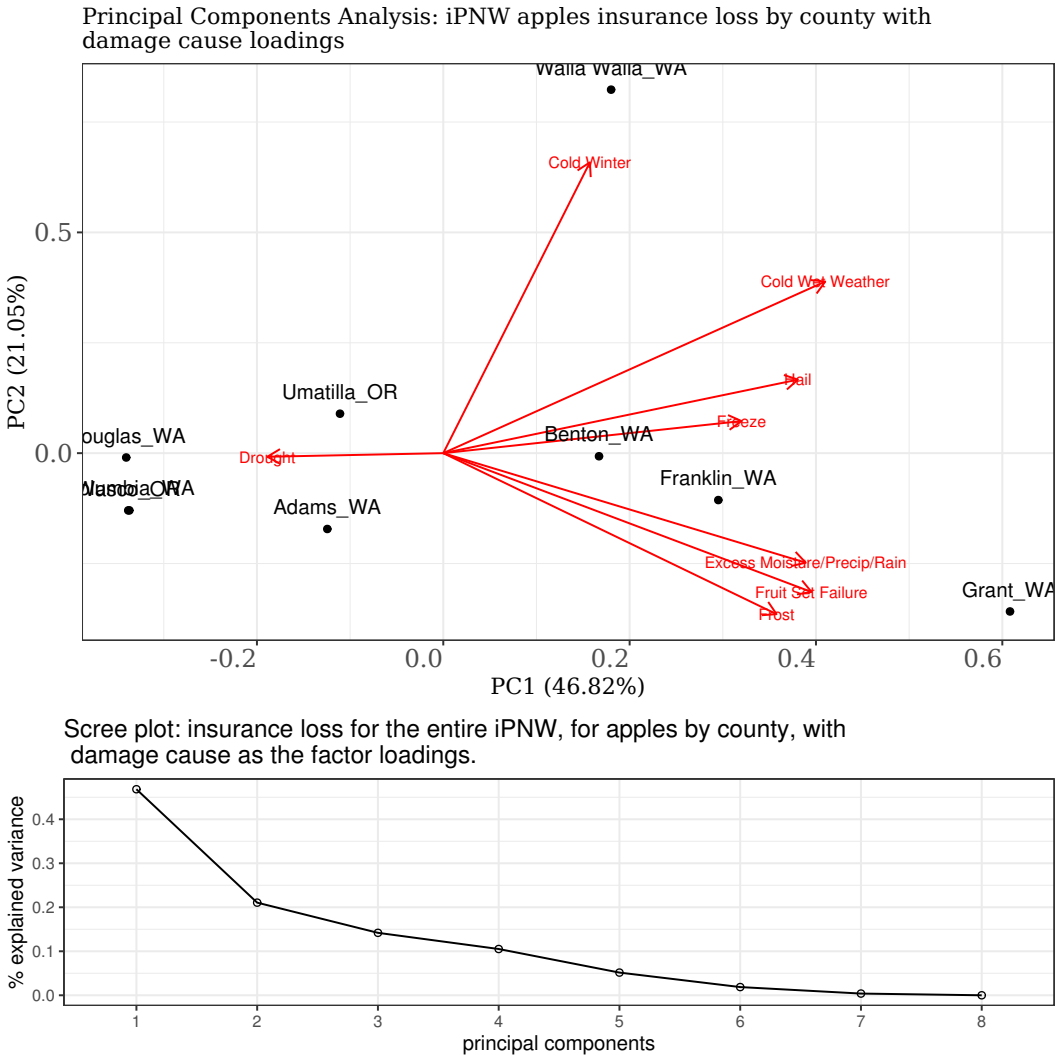

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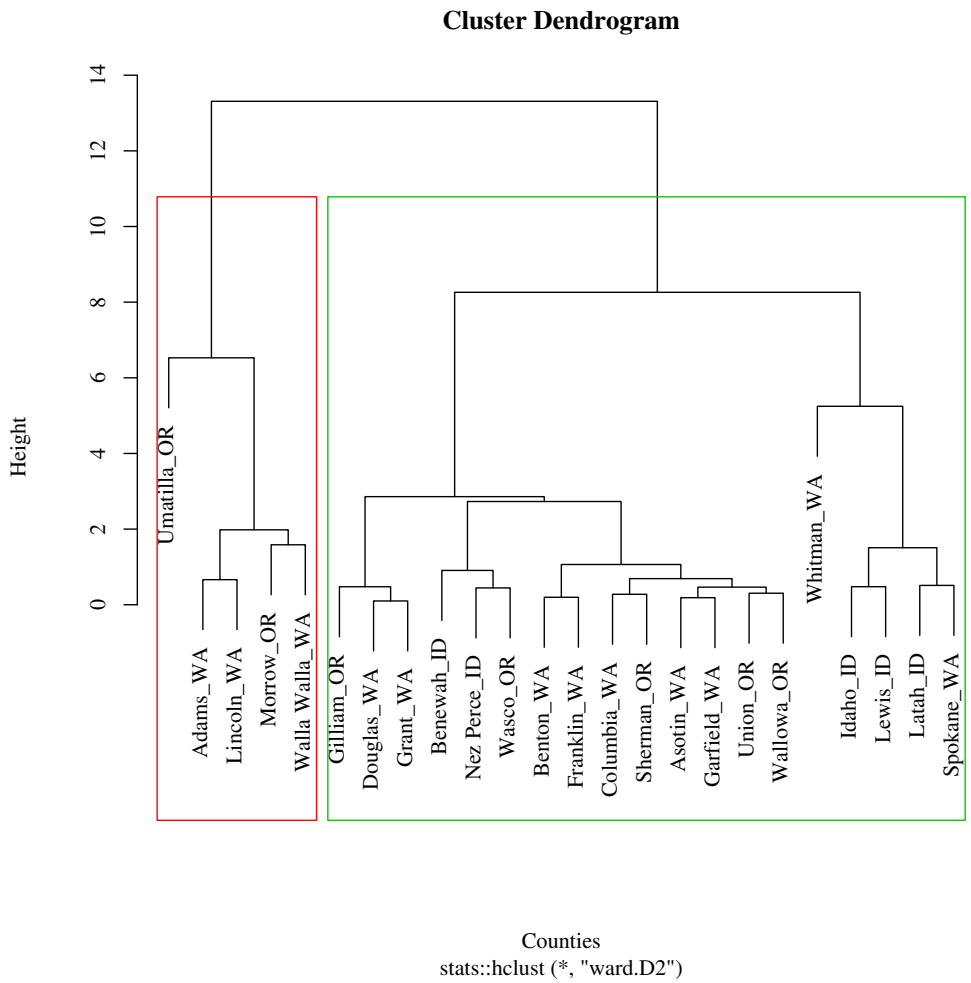

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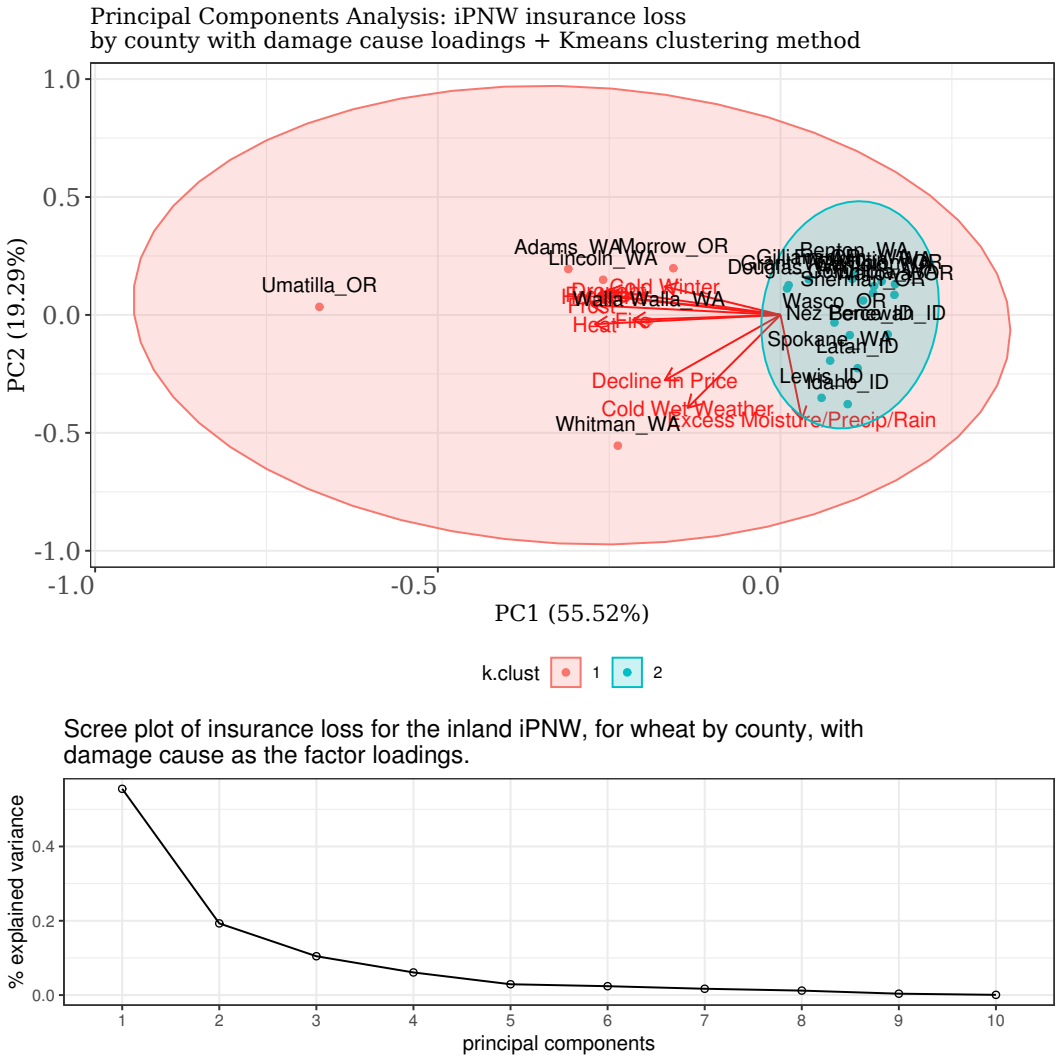

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