



TARGET PROFILES



Target Sector Profiles Regional Economic Growth Strategy for the Pennyriple Region

Prepared for the:
West Kentucky Workforce Investment Board and the
Pennyriple Area Development District



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INTRODUCTION

This report, *Target Profiles*, is a supplement to the *Target Selection* report and prior *Sector Analysis*. In this report, we provide detailed profiles of potential target sectors and subsectors for the Pennyrile region. Profiling sectors is an important component to selecting and prioritizing targets. We seek to go beyond a traditional economic and cluster analysis to identify the market opportunities presented by a potential target, what makes the Pennyrile region particularly suited to the target, and competitive realities that would impact the pursuit of the target.

Each target profile follows the same general format:

- Market Overview – A review of national conditions, growth trends, and characteristics of the target sector.
- Location Trends – An examination of where the target is located (and why) within the U.S., with a focus on the areas surrounding the Pennyrile region. We also examine the requirements of companies in the target sector to locate in a particular area.
- The Pennyrile Opportunity – A summary of the local assets and conditions which make the target suitable to the Pennyrile region.

Some targets are profiled in more detail than others, depending on the complexity of the target. Each target has its own “niche targets” which are profiled individually.

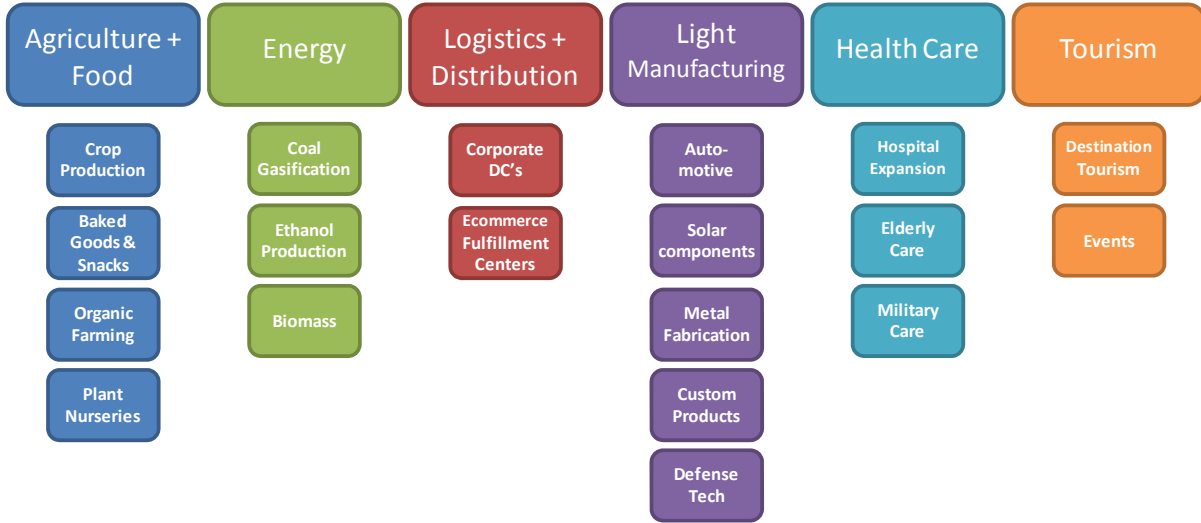
This research is intended to both inform the target selection process and to be used as a guide to local leadership as they pursue the development of these targets. For this reason, this *Target Profiles* report should be distributed within the region and not be posted on the public website in order to keep it private from competitor regions.



Sectors Profiled in This Report

The following sectors and niche sectors are profiled in this report:

PENNYRILE TARGET SECTORS:



TARGET SECTOR: AGRICULTURE & FOOD

Niche target: Crop Production

Market Overview

The agriculture industry has gone through several changes in the past decade: efforts towards farming more profitable crops, farms going organic, and a growing number of commodities being imported into the U.S.

Some crops are being planted and harvested more often than others. For example, 2010 had the highest rate of soybean growth in the National Agricultural Statistics Service's history. Corn also had an above average peak. The acreage planted this year is the second largest on record since 1946. Cotton has also seen its first peak since 2006. These peaks in acreage can be attributed to good weather and environmental conditions.

The Census of Agriculture in 2007 reported that corn was still the highest produced crop nationwide. This was followed by peanuts (for nuts), soybeans (for beans), sunflower seed (all uses and oil varieties), wheat (for grain), and winter wheat (for grain). The Census also shows that the market value of agricultural products sold in the U.S. increased by 50% between 2002 and 2007 – from \$200 billion in market value to \$297 billion in 2007. This is a tremendous confidence boost for the agriculture sector because it shows that farm products sold in the U.S. are increasing in value and also demand from new markets such as ethanol.

Although the U.S. continues to export far more agriculture than it imports, it still imports a large amount of food and food products each year. Imports range from fish, vegetables, spices, and candy. The amount of imported foods had a dramatic increase during the years from 1998 to 2007. The prepackaged consumer-ready foods had the largest increase by far. The foods we import and what countries we import them from is very diverse. The USDA put together a publication following food import trends over a period of ten years which breaks down each food sector individually. According to the report, the amount of fruits and nuts the U.S. imports has more than doubled since 1998, peaking at \$14 billion in 2007. While the majority of these imports come from Mexico, a large quantity comes from Chile as well. The same can be said for vegetable imports except that the second largest quantity comes from Canada.

The amount of imported grain products also increased from 1998 to 2007; however the increase was mainly seen in processed, ready-to-eat grains. Other imported food items that at least doubled from 1998 to 2007 were: meat and poultry, dairy products, albumin, spices, sugar candies, and vegetable oils. More growth was seen in semi-processed and processed products than in raw commodities.

Target Evaluation: *Agriculture & Food*

Local Asset Fit	■
National Growth	■
Relative Competitiveness	■
Job Impact	■
Wage Improvement	■
Strategic Value	■
Pursue as a Target?	●

Niche Targets:

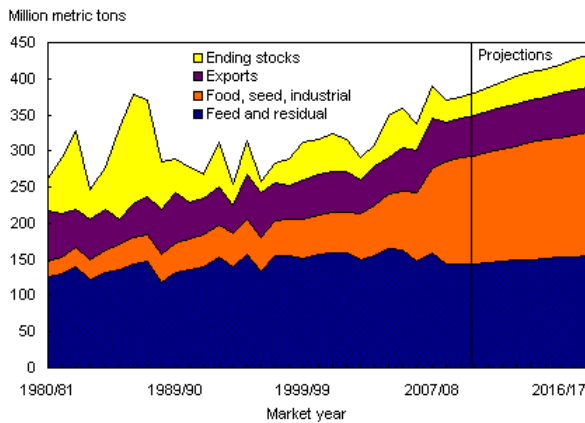
Crop Production	●
Largescale Nurseries	●
Bakeries (Tortilla, Chips, Cookies)	●
Organic Dairy farms	●
Aquaculture	●



The report also indicated that consumer-ready products had an import increase of over 100 percent. The majority of the imports were from Canada and Mexico, most likely due to NAFTA (North American Free Trade Agreement).

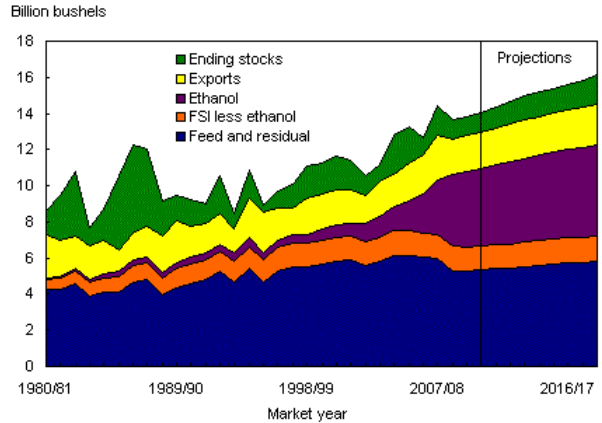
The USDA’s Economic Research Service (ERS) predicts that in the next decade the demand for meat products will greatly increase. This in turn will mean an increase in the grains used to feed them (see chart below), but most demand for grains will come from food and industrial/energy uses. The ERS reports that the amount of corn acres planted will grow dramatically, as it is expected to have the highest return to variable cost. The expected utilization for the corn forecasted for use in ethanol is expected to continue to increase (see chart to the right). As far as other grains are concerned, sorghum is expected to decrease, barley is predicted to slightly increase, and oat will remain unchanged.

U.S. feed grain utilization



Source: *USDA Agricultural Projections to 2018*, February 2009. USDA, Economic Research Service.

U.S. corn utilization



Source: *USDA Agricultural Projections to 2018*, February 2009. USDA, Economic Research Service.

Based on the ERA’s predictions, corn will be the most valuable crops for farmers for the next decade. Soybeans also have a profitable future as they are used in rotations with corn crops. In contrast to these two, the production of wheat is expected to decrease over the next decade as many farmers are switching to crops such as corn and soybeans.



The Pennyriple Opportunity

The Pennyriple region has enjoyed strong growth in its agriculture sector in recent years. Detailed data is only available every five years through the U.S. Census, mostly recently conducted in 2007.

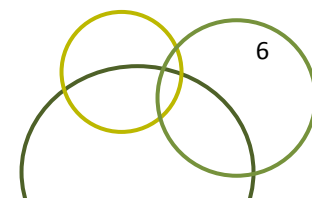
Nearly \$450 million worth of agricultural products were shipped in 2007 in the Pennyriple, KY region, led by poultry and eggs (\$153M), corn (\$97M), cattle and calves (\$38M), soybeans (\$33M), tobacco (\$23M) and wheat (\$19M). Agricultural sales grew 57% for the region from 2002-2007, faster than the U.S. which grew just 48%. The largest increases in revenue were in poultry and eggs (\$133M in new sales), grains (\$47M in new sales) and milk production (\$10M in new sales).

Large expansions in poultry production occurred in Todd and Hopkins counties. Due to this high volume of new poultry and egg production, Todd and Hopkins counties saw their agricultural sector grow the most in the region (+\$68M and +\$39M respectively), followed by Christian county (+\$12M) due to higher corn and milk production.

Value of New Agricultural Shipments, 2002-2007	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyriple KY
Total sales (\$1,000)	\$5,326	\$25,970	\$6,894	\$38,812	\$1,539	\$1,964	\$7,376	\$67,937	\$6,965	\$162,783
Sales directly to individuals for human consumption (\$1,000)	\$22	-\$101	-\$2	\$59	\$98	-\$13	\$39	\$294	\$98	\$494
Crops, including nursery and greenhouse (\$1,000)	\$3,842	\$12,071	\$4,295	\$12,857	\$1,625	\$2,285	\$5,915	\$8,029	\$3,543	\$54,462
Cotton and cottonseed (\$1,000)										
Cut christmas trees and short-rotation woody crops (\$1,000)										
Fruits, tree nuts, and berries (\$1,000)										
Grains, oilseeds, dry beans, and dry peas (\$1,000)										
Barley (\$1,000)										
Corn (\$1,000)										
Other grains, oilseeds, dry beans, and dry peas (\$1,000)										
Rice (\$1,000)										
Sorghum (\$1,000)										
Soybeans (\$1,000)										
Wheat (\$1,000)										
Nursery, greenhouse, floriculture, and sod (\$1,000)										
Other crops and hay (\$1,000)										
Tobacco (\$1,000)										
Vegetables, melons, potatoes, and sweet potatoes (\$1,000)										
Livestock, poultry, and their products (\$1,000)	\$1,484	\$13,899	\$2,598	\$25,955	-\$85	-\$321	\$1,460	\$59,908	\$3,422	\$108,320
Aquaculture (\$1,000)										
Cattle and calves (\$1,000)										
Hogs and pigs (\$1,000)										
Horses, ponies, mules, burros, and donkeys (\$1,000)										
Milk and other dairy products from cows (\$1,000)										
Other animals and other animal products (\$1,000)										
Poultry and eggs (\$1,000)										
Sheep, goats, and their products (\$1,000)										

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

Sales, Inventory, and Land, 2007	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrite KY
Total sales (\$1,000)	\$23,271	\$103,001	\$19,162	\$77,199	\$12,849	\$6,668	\$49,182	\$130,409	\$26,960	\$448,701
Sales directly to individuals for human consumption (\$1,000)	\$55	\$170	\$128	\$96	\$131		\$76	\$387	\$146	\$1,189
Crops, including nursery and greenhouse (\$1,000)	\$16,061	\$65,798	\$8,813	\$26,249	\$5,435	\$5,252	\$15,121	\$40,301	\$17,854	\$200,884
Cotton and cottonseed (\$1,000)										
Cut christmas trees and short-rotation woody crops (\$1,000)										
Fruits, tree nuts, and berries (\$1,000)			\$92		\$85				\$21	\$198
Grains, oilseeds, dry beans, and dry peas (\$1,000)	\$13,109	\$45,818	\$6,747	\$24,184	\$4,642	\$3,775	\$11,392	\$28,096	\$12,128	\$149,891
Barley (\$1,000)								\$49		\$49
Corn (\$1,000)	\$9,316	\$27,824	\$4,465	\$14,857	\$3,043	\$3,026	\$7,608	\$18,238	\$8,533	\$96,910
Other grains, oilseeds, dry beans, and dry peas (\$1,000)				\$556					\$1	\$557
Rice (\$1,000)										
Sorghum (\$1,000)			\$123	\$51						\$174
Soybeans (\$1,000)	\$2,733	\$7,469	\$1,781	\$8,345	\$1,460	\$636	\$3,319	\$5,830	\$1,227	\$32,800
Wheat (\$1,000)	\$1,060	\$10,457	\$378	\$375			\$317	\$3,958	\$2,369	\$18,914
Nursery, greenhouse, floriculture, and sod (\$1,000)	\$295	\$2,145	\$547	\$489	\$6		\$257	\$1,069	\$339	\$5,147
Other crops and hay (\$1,000)	\$998	\$1,465	\$1,001	\$588	\$659	\$222		\$836	\$337	\$6,106
Tobacco (\$1,000)	\$1,446	\$15,215		\$912		\$1,199			\$4,763	\$23,535
Vegetables, melons, potatoes, and sweet potatoes (\$1,000)	\$185	\$1,085	\$426				\$54	\$683	\$266	\$2,699
Livestock, poultry, and their products (\$1,000)	\$7,211	\$37,203	\$10,349	\$50,950	\$7,415	\$1,416	\$34,060	\$90,108	\$9,106	\$247,818
Aquaculture (\$1,000)										
Cattle and calves (\$1,000)	\$4,253	\$12,355	\$5,470	\$2,686	\$4,210	\$1,363			\$7,873	\$38,210
Hogs and pigs (\$1,000)	\$670	\$2,262		\$505	\$5	\$4		\$6,022	\$161	\$9,629
Horses, ponies, mules, burros, and donkeys (\$1,000)	\$28	\$274	\$87	\$249	\$210	\$18	\$51	\$217	\$92	\$1,226
Milk and other dairy products from cows (\$1,000)	\$2,216	\$12,547	\$375	\$60	\$30			\$9,418	\$690	\$25,336
Other animals and other animal products (\$1,000)		\$25	\$8	\$1	\$14				\$245	\$293
Poultry and eggs (\$1,000)	\$4	\$9,662		\$47,306	\$2,929	\$7	\$25,740	\$67,701	\$34	\$153,383
Sheep, goats, and their products (\$1,000)	\$39	\$78			\$17	\$17	\$62	\$19	\$12	\$244
INVENTORY:										
Broilers and other meat-type chickens (number)		523,576		2,953,512			1,146,400	349,800	9	4,973,297
Poultry Layers for Eggs (number)	218	104,654	2,273			380		2,452,404	1,279	2,561,208
Cattle and calves (number)	12,158	33,071	17,392	8,754	12,280	5,537	13,246	21,130	18,821	142,389
Cows and heifers that had calved \ Beef cows (number)	6,686	14,127	10,139	5,472	8,254			8,181	9,847	62,706
Milk cows (number)	742	3,953	129	20	10	3,472	8,511	3,405	228	
Other cattle (number)	4,730	14,991	7,124	3,262	4,016	2,065	4,735	9,544	8,746	59,213
Total hogs and pigs (number)		9,184		4,066	3			15,569	1,692	30,514
ACRES IN FARMS ACCORDING TO USE:										
Land in farmsteads, buildings, livestock facilities, ponds, roads, w	6,525	14,118	9,289	11,225	9,241	3,327	8,745	8,104	6,194	76,768
Pastureland, all types (acres)	33,966	63,019	50,813	29,329	46,210	15,458	35,504	35,431	37,143	346,873
Permanent pasture and rangeland, other than cropland and woc	16,148	31,064	27,164	17,200	22,318	10,480	19,887	18,235	23,060	185,556
Total cropland (acres)	86,512	239,355	84,407	101,796	61,253	29,365	74,483	136,214	74,014	887,399
Cropland used only for pasture or grazing (acres)	13,881	24,013	16,897	7,804	17,987	3,283	8,479	11,043	8,496	111,883
Harvested cropland (acres)	55,285	181,882	43,970	79,835	32,240	20,117	55,467	111,567	57,775	638,138
Other cropland (acres)	17,346	33,460	23,540	14,157	11,026	5,965	10,537	13,604	7,743	137,378
Cropland idle or used for cover crops or soil improvemen	14,343	27,355	20,649	11,887	9,942	5,354	9,735	11,741	6,448	117,454
Cropland in cultivated summer fallow (acres)	549	1,163	470		300	242	438	494	228	3,884
Cropland on which all crops failed (acres)	2,454	4,942	2,421		784	369	364	1,369	1,067	13,770
Total woodland (acres)	33,585	61,913	39,256	29,145	24,199	10,980	37,719	35,423	32,417	304,637
Woodland not pastured (acres)	29,648	53,971	32,504	24,820	18,294	9,285	30,581	29,270	26,830	255,203
Woodland pastured (acres)	3,937	7,942	6,752	4,325	5,905	1,695	7,138	6,153	5,587	49,434
Source: U.S. Department of Agriculture, Census of Agriculture (2007)										



Sales, Inventory, and Land, Growth 2002-7	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrite KY	Montgomery	United States
Total sales	30%	34%	56%	101%	14%	42%	18%	109%	35%	57%	0%	48%
Sales directly to individuals for human consumption	67%	-37%	-2%	159%	297%		105%	316%	204%	71%	-20%	49%
Crops, including nursery and greenhouse	31%	22%	95%	96%	43%	77%	64%	25%	25%	37%	-5%	51%
Cotton and cottonseed												22%
Cut christmas trees and short-rotation woody crops												-4%
Fruits, tree nuts, and berries					-10%				17%	-56%		35%
Grains, oilseeds, dry beans, and dry peas	48%	28%	107%	104%	45%	115%	125%	18%	28%	45%	17%	93%
Nursery, greenhouse, floriculture, and sod	25%	6%	58%	9%			-27%	203%	2321%	36%	10%	13%
Other crops and hay	99%	58%	50%		55%	35%		229%	117%	97%	-22%	25%
Tobacco	-43%	9%				33%			5%	-20%		-22%
Vegetables, melons, potatoes, and sweet potatoes	194%	42%					-63%	101%	156%	86%		15%
Livestock, poultry, and their products	26%	60%	34%	104%	-1%	-18%	4%	198%	60%	78%	10%	46%
Aquaculture												25%
Cattle and calves	34%	32%	28%	14%	17%	8%			78%	-2%	15%	36%
Hogs and pigs	-43%	-18%			-76%			66%	-56%	20%	-60%	46%
Horses, ponies, mules, burros, and donkeys	-93%	-47%	-74%	144%	-46%		-51%			-33%	56%	55%
Milk and other dairy products from cows	128%	99%						44%	142%	74%	-57%	57%
Other animals and other animal products		150%	60%		-72%					286%	-60%	66%
Poultry and eggs		122%		n/a	-12%	250%	n/a	415%		637%		55%
Sheep, goats, and their products		212%				6%	22%	1800%	-45%	18%		30%
INVENTORY:												
Broilers and other meat-type chickens		45%		81%			-4%	85217%		56%		15%
Poultry Layers for Eggs	-62%	5%	111%			57%			71%	2380%		5%
Cattle and calves	-21%	-13%	-11%	-34%	-27%	-9%	-15%	-12%	15%	-14%	-6%	1%
Cows and heifers that had calved \ Beef cows	-20%	-7%	-3%		-14%			-3%	13%	-15%	4%	-2%
Milk cows	39%	28%	-41%		-81%	4529%	8006%	-2%	78%		-68%	2%
Other cattle	-27%	-23%	-21%	-42%	-44%	-3%	-30%	-22%	17%	-22%	-17%	2%
Total hogs and pigs		-26%			-99%			-1%	-39%	-25%	-67%	12%
ACRES IN FARMS ACCORDING TO USE:												
Land in farmsteads, buildings, livestock facilities, ponds, roads, wa	-16%	-5%	37%	9%	-5%	-18%	4%	27%	52%	6%	-7%	-4%
Pastureland, all types	4%	0%	-4%	-25%	-9%	-15%	-10%	3%	2%	-5%	-17%	-3%
Permanent pasture and rangeland, other than cropland and woo	57%	46%	38%	23%	12%	114%	38%	60%	73%	44%	47%	3%
Total cropland	-12%	0%	-6%	-6%	-30%	-18%	-12%	1%	-1%	-7%	-14%	-6%
Cropland used only for pasture or grazing	-19%	-23%	-35%	-42%	-24%	-68%	-50%	-33%	-50%	-35%	-47%	-41%
Harvested cropland	-13%	8%	12%	1%	-26%	19%	1%	6%	16%	3%	8%	2%
Other cropland	-2%	-13%	-2%	-6%	-44%	-29%	-18%	-1%	-6%	-13%	-18%	-14%
Cropland idle or used for cover crops or soil improvemen	-14%	-26%	-8%	-11%	-47%	-31%	-18%	-11%	-14%	-21%	-42%	2%
Cropland in cultivated summer fallow	64%	37%	62%		270%	505%	106%	75%	-30%	43%	-92%	-5%
Cropland on which all crops failed	274%	424%	86%		-14%	-34%	-47%	452%	147%	94%	242%	-57%
Total woodland	8%	-8%	-4%	-9%	-17%	-7%	22%	15%	6%	0%	-29%	-1%
Woodland not pastured	15%	-6%	-3%	20%	-15%	5%	33%	20%	9%	6%	-25%	4%
Woodland pastured	-25%	-24%	-5%	-62%	-21%	-42%	-9%	-5%	-6%	-24%	-37%	-8%

Source: U.S. Department of Agriculture, Census of Agriculture (2007)



According to the University of Kentucky, the organic market sector has grown roughly 20% each year over the past ten years nationwide. This is also true in Kentucky, which has seen an increase in organic farm acreage. Now that there are stricter laws and regulations guarding the integrity of organic products, the market has become much more profitable.

Kentucky State University is also looking into organic farming. The students there have formed a group called Organic Agriculture Working Group. This group's mission is to research the best ways to farm organically and let the local farmers adopt the successful methods and techniques used in their research.

There is a transition process for farmers who choose to switch to organic farming. The soil the organic crops are to be grown on cannot have been treated with prohibited substances, pesticides for example, for at least three years. All farmers must also follow the regulations made by the National Organic Program and in Kentucky they must register with the Kentucky Department of Agriculture. Overall the process of switching to organic farming can take longer than three years and the crops may not be sold as organic until all the certification requirements are met.

While some farmers have found that their crop yield decreases during the three year transition period, it typically increases after this period. In fact, crop yields may even be 90 to 95% of what was previously produced. However, the type of cropping system used does play a large factor in this. Regardless of the set-backs, the University Of Kentucky College Of Agriculture believes that Kentucky could prosper from converting more of its farms to organic crops. This will also create more jobs, as it has been shown that organic farms can require up to an 11% employment increase, and a higher revenue increase due to larger price premiums.

The Pennyriple region could significantly increase its economic status by using its grain and wheat products to produce higher-value food products in mills and bakeries. Other options for putting Kentucky crops into higher value products: beverages. While corn syrup-based drinks are declining, alcohol sales continue to rise. Kentucky Bourbon uses grains and is made up of at least 51% corn.

The region's agricultural industry should continue to ensure that farmers produce the most profitable crops in high growth areas – compared within the region and to the U.S. As shown by the table below, the region earns lower value per acre of crops in corn, soybeans, and tobacco compared with the U.S., but higher values for wheat. Within the region, large variations are found between counties in value per acre for key crops. And today, the region has little presence in high growth areas for the U.S. such as sales to individuals (agritourism, farmers markets, local distribution), dairies, and "other animal products". Aquaculture, while growing at half the rate of the rest of the agriculture industry, is an emerging industry that is expected to see accelerating growth, but has no presence in the Pennyriple region.



Agricultural Value per Planted Acre	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrite KY	Montgomery	United States
Corn	\$412	\$306	\$411	\$431	\$390	\$409	\$333	\$377	\$326	\$357	\$338	\$463
Soybeans	\$180	\$153	\$196	\$270	\$200	\$109	\$214	\$136	\$87	\$173	\$136	\$317
Tobacco	\$3,846	\$4,215		\$4,364		\$5,475	\$0	\$0	\$4,145	\$2,867	\$5,095	\$3,524
Wheat	\$263	\$296	\$272	\$260	\$0		\$245	\$264	\$232	\$274	\$178	\$209

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

Sales, Inventory, and Land United States	U.S. Growth 2002-2007
Total sales (\$1,000)	48%
Sales directly to individuals for human consumption (\$1,000)	49%
Crops, including nursery and greenhouse (\$1,000)	51%
Cotton and cottonseed (\$1,000)	22%
Cut christmas trees and short-rotation woody crops (\$1,000)	-4%
Fruits, tree nuts, and berries (\$1,000)	35%
Grains, oilseeds, dry beans, and dry peas (\$1,000)	93%
Nursery, greenhouse, floriculture, and sod (\$1,000)	13%
Other crops and hay (\$1,000)	25%
Tobacco (\$1,000)	-22%
Vegetables, melons, potatoes, and sweet potatoes (\$1,000)	15%
Livestock, poultry, and their products (\$1,000)	46%
Aquaculture (\$1,000)	25%
Cattle and calves (\$1,000)	36%
Hogs and pigs (\$1,000)	46%
Horses, ponies, mules, burros, and donkeys (\$1,000)	55%
Milk and other dairy products from cows (\$1,000)	57%
Other animals and other animal products (\$1,000)	66%
Poultry and eggs (\$1,000)	55%
Sheep, goats, and their products (\$1,000)	30%
INVENTORY:	
Broilers and other meat-type chickens (number)	15%
Poultry Layers for Eggs (number)	5%
Cattle and calves (number)	1%
Cows and heifers that had calved \ Beef cows (number)	-2%
Milk cows (number)	2%
Other cattle (number)	2%
Total hogs and pigs (number)	12%
LAND IN FARMS ACCORDING TO USE:	
Land in farmsteads, buildings, livestock facilities, ponds, roads, wasteland, etc. (acres)	-4%
Pastureland, all types (acres)	-3%
Permanent pasture and rangeland, other than cropland and woodland pastured (acres)	3%
Total cropland (acres)	-6%
Cropland used only for pasture or grazing (acres)	-41%
Harvested cropland (acres)	2%
Other cropland (acres)	-14%
Cropland idle or used for cover crops or soil improvement, but not harvested and	2%
Cropland in cultivated summer fallow (acres)	-5%
Cropland on which all crops failed (acres)	-57%
Total woodland (acres)	-1%
Woodland not pastured (acres)	4%
Woodland pastured (acres)	-8%

Source: U.S. Department of Agriculture



Target Sector: Organic Dairies

Market Overview

Dairy products are an important part of American food production. Consumer demand for dairy has steadily increased over the years and in 2009 alone the dairy industry generated \$23 billion. This was a severe decrease for the industry: in 2008 the industry generated 36% more in revenue. Many experts believe that this decrease is simply a byproduct of the current recession as many consumers simply gave up certain dairy products in order to save money. Throughout the 20th century, dairy farms have transitioned from small local farms to large farms controlled by corporations. Furthermore, these corporations are driving smaller dairies out of business. Currently, the industry is dominated by a handful of corporations though more than 60,000 dairy farms are still in the U.S.

Before the recession, a trend in the dairy industry was growing consumer demand for **organic products**. Between 2000 and 2005 the number of organic dairy farms and cows increased at an annual rate of 25%. This rate of growth far exceeds the growth rate for regular milk and other dairy products. The number of USDA-certified organic milk cows in the U.S. increased from 38,000 to 86,000 during this time. The recession has hindered the growth of the organic dairy industry as it peaked at \$1.3 billion in 2008 before experiencing a decrease in 2009. However, many dairy farmers believe this is simply a minor setback and that organic dairy products are here to stay. They point to the growth in other organic food industries as proof. Many economists and associations, including Monett, Missouri's, believe this to be true as well, but are more pessimistic as they are unsure if the industry will bounce back right away.

Location Trends

Thus far organic dairies have been most successful in the Northeast, Midwest, and West Coast. These areas, which have traditionally been large producers of dairy products in the past, offer rich pasture land that helps lower costs for farmers. Farms in the Northeast and Midwest tend to be smaller operations as they average 53 and 64 milk cows per farm respectively. The West Coast tends to harbor larger dairy farms for a variety reasons including larger pastures and more favorable temperatures for larger herds of cattle. West Coast organic farms average 381 milk cows, which allow the area to produce more dairy products per organic farm.

California farms are struggling to survive due to the economic downturn and stiff regulations put forth by the state. California dairy farmers have to comply with yearly water and air-quality tests that do not affect other states. These tests cost farmers in the vicinity of \$35,000 to \$40,000 each year. Also, the state has more expensive feed, labor, and electricity costs than other states in the U.S. From 2008 to 2009, these unfavorable conditions caused California to experience its first production decline since 1956. The state also lost more than 250 dairies and 1800 operations

between 2004 and 2008. The U.S. has experienced relatively modest growth in dairy production over the last five years; however this loss means there is room for expansion in other states. States such as Missouri, Wisconsin, and Kansas have seen some of this growth due to their favorable growing seasons, cheaper feed, vast land, and low electricity costs. Also, a growing trend for Midwestern and Southern states is the desire to buy local, fresh milk. The dairies seeing the most success are those who produce all products in house and sell locally to their consumers. By purchasing local dairy products, consumers are not only paying lower prices and enjoying fresh products; they are also helping their local economies.

Recently, Northeast farms have faced a tougher slate that has affected individual farms as well as the dairy industry as a whole. The USDA mandates that organic milk cows must not be exposed to any pastureland that uses pesticides or fertilizer, even in trace amounts. This presents a problem for areas in the Northeast that have poor climate for growing suitable, large portions of land without pesticides. As a result of the land shortage, Northeastern farmers have begun limiting milk cows' exposure to pastureland by keeping the herd in windowed barns that allow the animals to receive sunlight to stay healthy. Consequently these farmers spend more on organic feed, increasing the overall cost of producing organic dairy products. It is a widespread belief that these unfavorable conditions played a hand in escalating the drawback in the industry, and that the only way to offset the rising price is to launch new organic dairies in more favorable locations such as the Midwest or the West Coast.

The Pennyrile Opportunity

The Pennyrile region has an excellent opportunity regarding the possibility of **organic dairy farming**. The organic dairy farming industry goes against the norm with respect to farm size and corporations. This is caused by the fact that it is difficult to maintain the strict USDA sanctions for mega farms and mass producers. As a result, 87% of the organic dairy farming industry operates with less than 100 milk cows. The Pennyrile region has several large tracts of acreage, including those previously used for coal mining; however, this land is often incapable of being developed due to years of mining, and could be used for agriculture. Farmers in the area can potentially designate areas to be developed for organic farming which will elevate the lifestyle of existing dairy farmers or individuals wishing to enter into the industry.

The region currently has few dairies in the area, with small dairies located in Hopkinsville and Madisonville. These dairies are not yet embarking into organic dairy production, leaving the opportunity open for other farmers. Also, the region has great infrastructure that will allow for distribution to larger urban markets where organic food consumption is more popular and time-to-market is important. The Pennyrile region is located inside the Midwest, where organic dairy farming is typically more successful than the Northeast. In comparison, the Midwest has a more suitable climate, which allows for more serviceable pastureland. This extra usable land makes the Midwest dairy process more ideal than the organic feeding process that is popular in the Northeast.

Niche Target: Aquaculture

Market Overview

Another area of food production showing increased growth is **aquaculture**, the farming of seafood in a controlled environment for consumption. These farms, which can manipulate environments to cater to specific species' needs, allow for the production of saltwater or freshwater fish regardless of location. Aquaculture is very popular internationally; however it remains a relatively young industry in the United States. According to the National Oceanic and Atmospheric Administration over one-half of the fish products consumed globally come from fish farms – of this, only 5% is from the U.S. Currently, the **U.S. imports 84% of its seafood – half of this imported seafood is from aquaculture**. As a result, the U.S. is experiencing an annual \$9 billion trade deficit in seafood trade. To reduce this trade deficit, the federal government has been prompted to appropriate grants for individuals to enter into or study aquaculture.

Fish farmers can raise their fish crop in two ways. The first is by use of a natural pond that can be controlled easily. The second is through manmade tanks. Either way can be used to successfully harvest fish. Virtually any species of fish may be harvested as long as the pond or tank is managed to satisfy that particular specie's needs.

Location Trends

Aquaculture in the United States has been located predominantly along the coast and in the southern states. According to NOAA, Maine leads the U.S. in seafood aquaculture. Southern states such as Alabama, Mississippi, Louisiana, and Georgia use aquaculture to raise freshwater species such as catfish and crawfish. Most states have some sort of aquaculture, but the industry can expand exponentially in the United States. For example, Alabama produces over 100 million pounds of catfish each year. However, biologists say that the state can supply 10 times that number if more waters are opened to aquaculture.

By comparison, Kentucky aquaculture farms are disorganized. The state has an aquaculture association, but information is not easily available for those interested in pursuing an aquaculture farm. Kentucky State University currently has an aquaculture program promoting the industry for the region. The program offers training in all aspects of seafood harvesting. Few seafood farms exist in the state and Aquaculture of Kentucky seems to be the largest freshwater fish farm in the state. Aquaculture of Kentucky was founded in 2000 with a simple 5-acre pond. Since that time, the farm has incurred several expansions as the domestic demand for fish is ever growing. The area has ample freshwater at its disposal and has the potential to become a large producer of both freshwater and saltwater fish if investments are made in the industry.

Many states are finally embracing aquaculture as a result of severe trade deficits and incentives that are being awarded by the federal government. However, the expansions being made around the country seem to have little correlation with any particular region. States such as Alabama that have embraced aquaculture and begun farms reap the benefits of economic success. Demand for fresh and saltwater fish is not diminishing and will only increase even more in the years to come.

The Pennyrile Opportunity

Pennyrile has the land and water resources not only to support aquaculture but also for the industry to thrive. Currently, Kentucky has very few fish farms that produce fish for consumption. The only farms close to Pennyrile are two farms in Bowling Green and another just west of the Kentucky Lake.

The sparseness of farms in the region favors Pennyrile. Pennyrile also has an advantage other states may not have: Hopkinsville's ethanol factory produces a byproduct which can be used to substitute certain fish feeds. This byproduct is not only less expensive, but its high nutrition content produces a higher quality of fish. The ethanol byproduct helps endangered natural baitfish and will allow Pennyrile farms to have lower costs that other farms will not be able to enjoy. Drawbacks to the industry include maintenance and constant monitoring for disease and predators. However, these concerns seem to be minimal and can be addressed through assistance from the Breathitt Veterinary Center of Murray State University in Hopkinsville.

Kentucky State has a strong aquaculture program (<http://www.ksuaquaculture.org>) and the state's Aquaculture Plan identifies seven species of fish that have the highest degree of opportunity for production within the state: freshwater shrimp, trout, catfish, largemouth bass, paddlefish, hybrid striped bass, and baitfish. (<http://www.kyagr.com/marketing/aquaculture/documents/plan.pdf>)



Niche Target: Plant Nurseries

Market Overview

Today, many Americans strive to keep their lawns well maintained and their yards filled with landscape plants. In recent years, the importance of maintaining a landscaped lawn has grown, putting professional landscaping jobs and supplies on high demand. Until the late 1990s, the franchise landscaping industry was growing exceptionally well, creating a demand for new nurseries to produce the plants used by landscapers. A lull existed in the landscaping industry from the late 1990s to the mid 2000s as “Do It Yourself” stores such as, Home Depot and Lowes, offered an alternative to landscaping crews. However, the lull didn’t affect nurseries because these superstores still needed suppliers to sell plants at retail. The U.S. Census reveals that the demand for plants has averaged a 3% growth rate since 2003. In 2007, a survey conducted by the American Nursery and Landscape Association revealed that 48% of Americans participated in regular lawn care. The entire 48% did not contract out their work to landscapers, although nurseries did directly benefit as the vast majority of plants used came from domestic nurseries.

The nursery industry accounts for roughly 2% of the U.S. workforce, with nearly 50,000 nurseries across the U.S. employing over 215,000 American workers. Many of the workers in the nursery industry have low skill sets and earn low wages. Although projections for the industry are still growing, the job growth rate will be somewhat less than revenue growth for the industry, due to the introduction of new technologies that make plant cultivation more efficient and less demanding of man-hours. It should be noted that the overall success of the nursery industry hinges on new construction and many nurseries have suffered recently as a result of a drop in demand for new house and commercial building construction.

Location Trends

Warmer states such as Florida, California, Arizona, and Texas have consistently been home to more nurseries per capita than other states in the United States. They also tend to have the lowest average wages per worker in the industry. Factors contributing to this include: Immigrant workers willing to work for low wages and the competition between companies that drive down service prices. Northern and Midwestern states that have fewer competing companies often employ fewer workers, but pay higher wages.

The state of Tennessee has enjoyed success in the nursery industry due in part to its good road infrastructure that allows shipping to many parts of the U.S., favorable weather conditions, and its large supply of water to sustain a large quantity of plants. Tennessee is currently ranked 17th in the U.S. for nursery establishments, while Kentucky ranks 32nd. The success in Tennessee suggests that neighboring regions in Kentucky such as the Pennyriple region should be able to be successful in this industry due to the fact that they both have many of the same resources.

Local nurseries provide plants for customers that can be landscaped by the consumer or through another company. Nurseries can provide exotic or domestic plants, depending on preference, that will not otherwise be available; however, the products in highest demand are trees and shrubs. Kentucky is still prone to sporadic freezing conditions but trees and shrubs are more hardy than most types of nursery plants. Oftentimes it takes years for trees to grow to maturity and provide the scenery desired by businesses or homeowners. Fortunately, nurseries can provide mature trees at fairly low prices that allow consumers to enjoy them years in advance. In addition to specializing in trees indigenous to the area, nurseries also offer trees that are not native to their region, providing a variety of choices for customers.

One large wholesale nursery company exists in the region: Wofford's Nursery and Landscaping. Wofford's was founded in Clarksville, Tenn., in 1999 and has grown to be quite successful during its 11 years of operation. The company has been successful due to its large tree farm that allows customers to purchase 8 to 10 year-old trees. Many consumers now prefer to purchase these full-grown trees instead of waiting years to grow their own. Other than homeowners, buyers of aged trees include: government, wildlife reserves, environmental groups and landowners with large acreage that plant several varieties of hardwood in their wooded areas. For the environmental group, tree demand has grown drastically in the last 20 years. These groups spend a great deal on tree saplings from nurseries for areas that have seen large acreages cut for lumber. To rebuild these areas, environmentalists buy trees in large quantities, ultimately helping boost the industry. Mature tree costs are also more affected by distribution time and costs than other plants due to the difficulty in packing them tightly. Also producing revenue, local retail centers prefer nursery providers that are regional to their location. At the moment, Wofford's is the only wholesale nursery that is within the region. Neighboring Bowling Green has two wholesale nurseries.

The Pennyrile Opportunity

The Pennyrile region is already home to Wofford's Nursery, which has been very successful in its 10+ years of operation. While the industry does have a limit on the number of companies that can be in one area without saturating the market, Pennyrile is a region that still has room for expansion, particularly for companies that aim to export outside the region. Many factors will support additional nursery companies. First of all, Wofford's is not in close proximity to many of the communities in Pennyrile. Paducah also has two nurseries, but again, the proximity of the nurseries does not suit the region well. Another reason for more nurseries in the area is its abundance of coal resources. The region has been blessed with coal for many years but after mines quit production, the land must be dressed up in some manner to prevent land erosion. Oftentimes trees are planted to prevent this erosion. If a nursery were present in the region, there would not be a need to ship in these trees and therefore local businesses would be utilized in the region, helping stimulate economic growth. More importantly, as a local nursery develops its local business, it would naturally have large opportunities to distribute within the Midwest.

Other supporting assets in the Pennyrile region include the Land Between the Lakes Park, Lake Barkley State Resort Park, and the Pennyrile State Forest. These forested areas are constantly maintained and are allowed to be replanted, unlike National Parks. Having local nurseries and tree farms in the region will be ideal when replenishing these forests. Finally, the Pennyrile region has several different species of trees indigenous to the area that are uncommon in other regions of the country. These indigenous trees (including various oaks and other hardwood species) can potentially be grown in nurseries and exported to consumers in other areas of the country. Since these plants are an exported item, they can be sold for higher prices. (See below for a complete list of native Kentucky trees.)

List of Native Trees in Kentucky

Allegheny serviceberry	Eastern redbud	Sassafras
American beech	Eastern white pine	Scarlet oak
American holly	Flowering dogwood	Shagbark hickory
American hophornbeam	Fringetree	Shadblow serviceberry
American hornbeam	Green hawthorn	Shellbark hickory
American linden	Green ash	Shingle oak
Bald cypress	Honeylocust	Sourwood
Bigleaf magnolia	Kentucky coffeetree	Sugar hackberry
Black cherry	Mountain silverbell	Sugar maple
Black locust	Mountain Stewartia	Sweet birch
Black oak	Northern catalpa	Sweetgum
Black walnut	Northern red oak	Sycamore
Blackgum	Ohio buckeye	Tulip poplar
Blue ash	Pagoda dogwood	Umbrella magnolia
Bur oak	Pawpaw	Virginia pine
Chestnut oak	Pecan	White ash
Chinkapin oak	Persimmon	White oak
Cockspur hawthorn	Pignut	Willow oak
Common witchhazel	Pin oak	Yellow buckeye
Cucumber tree magnolia	Red buckeye	Yellowwood
Downy serviceberry	Red maple	
Eastern hemlock	River birch	

Furthermore, planted trees have the potential to become future biomass materials, which can be collected and used in on-site boilers at local manufacturing plants or government/educational offices. See the subsequent section for more on how “woody crops” would support a biomass industry in the Pennyrile region.

Niche Sector: Food Manufacturing (Baked Goods, Chips)

Market Overview

Presently, the national picture for food production and manufacturing is mixed. The outlook for job growth in this industry looks flat to negative for the next 10 years as jobs in the field are expected to be replaced through greater automation. Manufacturers are downsizing employee numbers and replacing them with technological advancements and automation. Manufacturers are in fierce competition with each other and are searching for ways to decrease costs while maintaining current production levels, causing a downsize in production workers and an increase in technological improvements.

The food market is constantly expanding as the U.S. population grows. Trade in food plays a smaller role for this industry than other manufacturing sectors, as most of the crops and livestock consumed in the U.S. are produced domestically. However, the top 15 processed food imports accounted for \$33 billion in 2009. Most of these foods reflect the consumer's demand for foreign wine and beer, coffee, beverages, cheese and beef.

High growth sub-sectors in food manufacturing include meat, poultry, and fish processing, as these jobs remain labor-intensive. According to the Bureau of Labor, these sectors' growth depends solely on consumer demand and can be affected by further unfavorable economic conditions. Other areas of growth include healthy snack foods and organic products.

Healthy snack foods are a particularly high-growth segment of the market. Nabisco and Kraft have been the key players in producing low calorie snack packs. These snack packs offer consumers their favorite cookies with fewer calories. In 2008, 100-calorie snack pack sales totaled \$400 million. Before 2003, these snack packs were non-existent. Many critics argue that these snack packs are merely a fad. However, advocates proclaim these snack packs as innovative and project further market growth as Americans attempt to curb unhealthy eating habits and battle obesity.

Imports of Processed Foods into the U.S.

(in \$billions)

Processed Food	Imports in \$billions
Coffee Incl Prods	\$4.15
Wine	\$4.07
Malt Beverages	\$3.44
Cocoa and Prods	\$3.34
Beef and Veal Fr or Froz	\$2.53
Biscuits and Wafers	\$2.17
Other Grains and Preps	\$2.03
Essential Oils	\$2.00
Other Beverages	\$1.89
Misc Hort Products	\$1.67
Other Fruits Prep/pres	\$1.36
Confectionery Prods	\$1.17
Drugs Crude Natural	\$1.09
Cheese	\$1.04
Other Dairy Products	\$0.94

Source: U.S. Department of Agriculture, U.S. Department of Commerce



Location Trends

The food industry is located in all 50 states. Most producers are regionally based and are located close in proximity to the areas in which they buy crops. Several large food manufactures are expanding, leaving less known brand names behind. These companies are increasing factory sizes so that production levels and productivity will rise.

Examples of recent expansions in the central U.S. include Kellogg's, Kraft, and Bremner in Georgia, Missouri, and Kentucky respectively. Kraft expanded their location in Springfield, Missouri. The expansion resulted in 50 additional jobs on location and increased production levels. Frito Lay just expanded for the third time in March at its location in Topeka, Kansas. Bremner expanded at their Princeton, Kentucky location within Pennyrile. The expansion resulted in 111 additional jobs as well as increased production.

Food manufacturers typically receive state and local incentives when undergoing expansion, including the projects highlighted above. For some low-cost manufacturers, incentives play a critical role in the companies' decision and location of their expansion. Other reasons for expansion include: strength in roadway infrastructures, availability of agricultural inputs, low cost and abundant water and wastewater, and community fit.

The Pennyrile Opportunity

The Pennyrile region has opportunities to attract new manufacturers of **baked goods** and **snack chips** (wheat and corn). The region produces large quantities of corn, wheat, and soybeans, some of which are already used in food products. Food producers in the region include Seimer Milling, Bremner Food Group, Land O'Frost, U.S. Smokeless Tobacco, and Swisher International. More opportunities can be found for the region's agriculture sector to move up the value chain into food production. Local crops can be inputs to various chip, cereal, and bread products. Strong highways and the future expansion of I-69 will further enhance the locational benefits of food manufacturing in the Pennyrile region.

Chip factories use large amounts of corn to produce their product. Pennyrile's main crop is corn and farmers have searched for ways to increase demand for their crops in the past. Pursuing a company such as Frito Lay will be beneficial for the region, as it will add another large consumer of corn to the area. Pennyrile has a strong road system which will be ideal for a company looking to expand as they use large fleets of trucks to distribute their product to retailers. Companies such as Frito Lay have expanded many times during the last decade. Pennyrile has large, affordable tracts of land and the resources and inputs to support chip manufacturing. Frito Lay plants average 300,000-500,000 sq. ft. and 250-500 employees. Many are centrally located to distribution regions and close to many different roadway systems.

TARGET SECTOR: ENERGY

Considering the Pennyriple region’s strong coal, agriculture, and forestry sectors, and its successful ethanol production plant, we profile three areas of opportunity for the region: gasification (both coal and biomass) and ethanol production.

Niche Sector: Coal and Biomass Gasification

Market Overview

Gasification takes carbon-rich products, such as coal or biomass, and converts them into a gaseous intermediate known as syngas. Once the syngas is made it can be used to produce many different energy resources. Although it can be used as a source of gas itself, it has about half the density that natural gas does, and is therefore more suitable as an intermediate to transportation fuels and other chemical products. Furthermore, if the gasification process is carried out correctly, it is a much more efficient way of disposing waste byproducts, as compared to a waste stream disposal system.

The Pennyriple region is currently a prospective site for a large gasification plant. In December 2008 Peabody Energy announced its plans to construct a \$2 billion coal gasification plant in Muhlenberg County by filing an air permit with the Commonwealth of Kentucky – now called the Kentucky NewGas project. If the permit is granted the plant will produce “pipeline-quality natural gas for sale on the open market...and carbon dioxide to companies that inject it into oil and gas wells to increase production,” according to an article in Clean Coal. CoalGasificationNews reports that “[once the plant is complete] it will process about 3.5 million tons of coal per year and produce 50 to 70 billion cubic square feet of substitute natural gas (SNG).” SNG can be shipped through natural gas pipelines without harming the pipes. This plant will provide the region with more jobs, a local source of clean energy, and a competitive product on the market.

It is important to note that gasification plants do not have to be multi-billion-dollar plants. In fact, a majority of plants are much smaller. For example, a commercial plant under construction in Alaska requires an investment of only \$20-45 million. A gasification plant in Georgia is expected to be producing energy by 2014 and is estimated to cost between \$450 to \$500 million dollars. It is also possible to turn a coal-fired plant into one that is run solely on biomass inputs. For example, a plant at the University of Wisconsin-Madison is planning to invest \$250 million to do just this. The University of Minnesota at Morris is in the process of building better biomass reactors to create syngas to heat their campus. This project is a scaled pilot to learn how to create syngas on a much larger level to be able to fuel larger areas than just one campus.

Target Evaluation:

Energy

Local Asset Fit	Yellow
National Growth	Green
Relative Competitiveness	Yellow
Job Impact	Green
Wage Improvement	Green
Strategic Value	Yellow
Pursue as a Target?	Green

Niche Targets:

Biomass	Green
Coal Gasification	Orange
Ethanol	Green



There are other biomass plants being used around the U.S. as well. A \$300 million plant was built in

Creating Coal-Based Syngas from Inside the Mines?

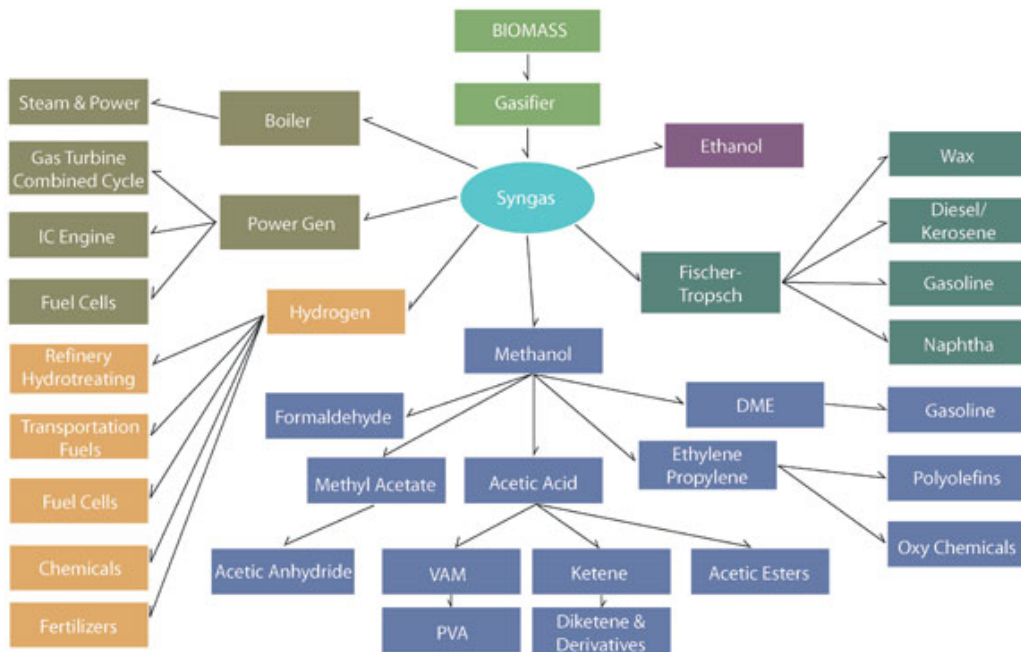
An Alaska mining company is currently developing a \$20-45 million underground coal gasification project near Beluga, about 50 miles west of Anchorage. The firm is working with Laurus Energy, a Houston-based technology firm. The project is designed to produce syngas from coal combustion underground: "A controlled combustion would be ignited and through a reaction that occurs, using a proprietary process owned by Laurus, results in forming of synthethis gas, which is then produced to the surface through a production well." The firms hope to have the plant operational by 2015.

http://www.alaskajournal.com/stories/060410/oil_11_001.shtml

Polk County, Florida in the mid-nineties. Half of the expenses were taken care of by the Department of Energy. Another plant in Snowflake, Arizona opened its doors in June of 2008 and is selling its electrical outputs to the two largest electric companies in Arizona. A plant near Franklin, Georgia is supposed to be ready for operation sometime this year. This facility is sponsored by a Georgia electric company which will buy 100 percent of the outputs for the first 15 years.

As shown by the diagram below from Biomass Magazine, biomass gasification can use numerous inputs to produce syngas – not just coal – which can then be converted to numerous energy products and technologies, including on-site generation, ethanol, hydrogen, and even gasoline:

Gasification – Options for Bio-based Products



Source: Biomass Magazine

The gasification of coal is not a new idea and was used as early as 1792. The process was patented in 1921, and used by the Germans during WWII. There are already coal gasification plants throughout the world that have been successful in producing fuel, energy and other products as needed. Sasol in South Africa has the largest concentration of gasifiers and uses them to produce over 40 percent of the region’s fuel and chemicals. China, Japan, and India all have gasification plants which they mainly use to produce methanol and ammonia. Europe has five gasification projects: three are located in Italy, one in Spain, and the other in the Netherlands. There are currently only four sites in the U.S. that use coal gasification plants. According to Clean-Energy.us, over the course of the next five years, the first large-scale power plants will be built in the U.S. to convince investors, regulators, and lenders that these projects are technically and financially viable. After the initial five are built, the industry hopes that it will be evident that there is a need for these plants and they will continue to be developed.

According to Clean-Energy.us, the U.S. contains more coal than any other country worldwide. Studies have shown that the U.S. is capable of continuing to meet domestic needs for coal for more than 250 years, if consumption continues at the same level. Kentucky is one of the top coal-producing states in the U.S. The Pennyrile region has its large coal mining industry and is further supported by large supplies of wood and crops, which can all be used in the production of syngas.

Coal, wood, and crops all have the potential to be made into some sort of gas product. While the technology to transform the syngas into renewable fuel sources already exists, the technology to effectively renew the syngas sources is still somewhat ambiguous. A study presented at the 2nd World Conference and Technology Exhibition on Biomass for Energy, Industry, and Climate Protection suggested that wood and grass make up 70-90% of the total biomass that is available and that efforts should be focused here. Studies also show that short rotation woody crops will be the most important source of the biomass. The result of harvesting woody crops will be millions of acres of unirrigated land that will need to be irrigated and taken care of so the land can once more be productive. This will create many new jobs in the rural areas.

Like gasification, ethanol production takes a bio-based input and converts it to several energy products and byproducts. The future of ethanol is highly dependent on federal policies. In 2005 the federal government passed the EPACT2005 which created tax cuts and incentives for businesses, as well as set new standards. Some of the incentives that relate to the Pennyrile region are: extension of tax credits for small ethanol, agri-biodiesel, and biodiesel producers, and an investment tax credit for the construction and development of new or repowered coal-fired generating projects to list a few.



The Pennyrile Opportunity

The Pennyrile region has a thriving coal industry, one of the world’s most productive corn economies, and a bountiful supply of biomass forests. These resources can be further expanded to create a more diversified clean energy production economy by expanding its ethanol industry into biomass sources, supporting the proposed Kentucky NewGas gasification plant, and exploring opportunities to build new, smaller gasification plants.

The federal government has also put aside millions of dollars in grants for states that establish programs for research, development, and production of alternative energy sources. Murray State University’s Breathitt research center in Hopkinsville could partner with future biomass plants on research projects centered on alternative energy sources from agriculture and forestry.



Niche Sector: Ethanol Production

Market Overview

The ethanol industry is exploring other sources for inputs beyond corn. One Illinois-based company, Coskata, uses other forms of biomass, solid waste, forest residuals, and other carbon containing materials to make syngas to convert into a renewable form of ethanol that they call Flexethanol. This company focuses on taking waste that is no longer of use to the environment, and essentially recycling it by turning it into a renewable fuel source. The Pennyrile region could use the same procedure and create their own form of ethanol using the solid waste and tree and crop residuals available naturally.

The Pennyrile region currently has one ethanol plant that produces about 15 million gallons of ethanol each year. Corn yields have increased in recent years, which would support further growth in ethanol production. The Pennyrile region could also use their corn crop waste to create ethanol or other new energy outputs. According to the University of Minnesota at Morris, corn produces a large amount of waste biomass from left over corn stover when it is harvested. The majority of the corn stover is tilled back into the soil to help replenish the nutrients and prevent degradation but studies have shown that not all the corn stover is necessary to protect the soil. In fact, up to 50% of it could be removed and put to use in other ways, such as being burnt for electricity or used to make green fuels. They have also found that if the stover was converted to fuel, it could generate roughly 300 to 400 million gallons of environmentally safe fuel, which could replace up to 15% of our country's current gasoline intake. Any other biomass source in combination with the corn stover would further increase this number.

Furthermore, Kentucky is actively pursuing biomass as a source for creating non-corn-based ethanol. The Kentucky Rural Energy Consortium (KREC) developed the "Kentucky 25x'25 Roadmap" in 2008 to recommend and support an ambitious energy goal for the Commonwealth: "By the year 2025, Kentucky will use renewable energy and energy efficiency as means to get at least 25 percent of its total energy from improved technologies and renewable resources such as solar, wind, biomass and biofuels." The report identifies biomass – in the form of switchgrass and corn stover – as the largest potential source for ethanol production in the state, not corn.

Potential Ethanol and Biodiesel Produced in Kentucky from Biomass Fuels		
	Million Gal/yr	tBtu/yr
Corn	186	14.1
Switchgrass	361	27.4
Corn Stover + Residues	121	9.2
Vegetable Oil to Biodiesel	107	14.9
Total	775	65.6

Source: Kentucky 25x'25 Roadmap

TARGET SECTOR: DISTRIBUTION

Niche Sector: Distribution Centers

Market Overview

The Warehousing and Distribution industry is comprised primarily of third-party logistics firms, corporate-owned warehousing facilities, and freight carriers (trucking, air, rail, and water).

In 2008, the third-party logistics industry within the United States was a \$127 billion market. The industry saw continuous growth and expansion as retail and manufacturing companies increasingly relied on distribution centers. In 2009, there was a dip, but the outlook for 2010 remains positive as companies again started constructing and leasing warehouses. Some large retail companies own their own warehouses because they have the capital and need the special attention. Some brick and mortar companies and online companies devote warehouses to fulfill online orders. Other retail and manufacturing companies seek to reduce expenses and increase efficiency in their operations by outsourcing their inventory management and shipping to third-party logistics providers (3PL).








Third-party logistics providers can be divided into non-asset and asset firms. The non-asset 3PL providers schedule and quote delivery options. They do not own warehouses or property other than offices but instead find the best prices for customers. Asset 3PL providers can own warehouses, equipment, transportation fleets to house and deliver the inventory of their clients. Asset 3PL providers include those solely based on delivery, such as UPS and DHL, outsourced warehouses, and outsourced warehouses with their own truck fleet.

The asset 3PL industry involves a close relationship between warehouses and transportation. The warehousing companies can be differentiated into general warehousing and storage, farm product warehousing, refrigerated warehousing, special warehousing, and household goods. Originally specializing in storage, warehouse operators have become third-party logistics providers by including value-added services to their storage facilities. According to Armstrong & Associates, providing basic warehousing services accounted for 19% of revenues and logistics services generated 40% of third party logistics providers' revenues.





The distribution industry is highly dependent on the economic condition of manufacturing and production, which in turn depends on consumer spending. In 2009, revenue was \$108 billion, because demand for goods decreased. This reflects a 15% decrease in gross revenue year-over-year. Revenues are growing again as the economy rebounds. Reflective of the downturn in the overall logistics industry, truck companies also faced slowing business in 2009. As demand for client

Target Evaluation:

Distribution

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Distribution Centers	
Customer Fulfillment	
Online Retail/Fulfillment	
Logistics providers	



products increase in 2010, (according to the American Trucking Association) the April 2010 truck tonnage index grew 9.4% from April 2009.

Technology plays a vital role as customers expect warehouse operators to accommodate frequent and smaller shipments through Just-In-Time inventory management. The logistics industry relies on technology to increase the efficiency of tracking and moving shipments. Customized Warehouse Management Systems and Transportation Management Systems software track inventory as it moves through the warehouse and shipping. Radio Frequency Identification tags automatically update the status of inventory items to the warehouse databases. New technologies require a workforce with strong computer and analytical skills.

In order to combat volatile fuel prices, it is vital for warehousing companies to maintain access to the other modes of transportation: rail, airplanes, and ships. Inventory can be grouped into larger shipments to cut costs.

Location Trends

Given the presence of trucking and warehousing in the Pennyrile transportation sector, we focus this profile on land-based freight-forwarding, though the role of water freight may play a larger role for the region as Paducah expands its port capacity to accept containers.

Location is the top requirement for logistics companies. The large size of warehouses requires regions with empty plains. In order to increase efficiency, warehouse facilities must have access to various means of transportation and be centrally located to consumer markets. Warehouses are concentrated around airport hubs, which also connect to highways and rails.

Kentucky and its surrounding states are favorites among warehousing companies because of proximity to various modes of transportation and customer markets. According to Chicago Consulting, central Kentucky has the lowest lead-time for transit to the end customer market, which is a major consideration for efficiency and reducing costs. The main cities in the area that have seen rapid growth in the industry are Louisville, Memphis, St. Louis, and Nashville. We provide short profiles of each region's distribution industry:



Louisville, Kentucky

Louisville is located in Jefferson County in Northern Kentucky. Highway I-64 connects Louisville to the Louisville International Airport and the Louisville-Jefferson County Riverport in addition to the cities St. Louis, Evansville, and Lexington. Other highways that cross into Louisville include I-65, which connects to Nashville, Atlanta, and Indianapolis, and I-71, which connects to Cincinnati. According to NREI, the United Parcel Services hub near Louisville International Airport is Louisville's largest private employer. In addition, UPS expanded its internationally-focused operation, Worldport, which is located in the same area. A DHL International hub is located at the Northern Kentucky Cincinnati International Airport as well. Transportation around Louisville is further enhanced by the extensive rail network, which also connects to the Port of Indiana-Jeffersonville on the Inland Waterway System.

As the U.S. warehousing industry grew, Louisville saw major expansion in recent years. However, in the fourth quarter of 2009, there was a mix of growth and recession in the region. Retailer Linens 'N Things Inc. went bankrupt and closed its 611,000 sq ft distribution center. Circuit City withdrew from two warehouses at Jefferson Riverport International. Several deals were made from 2009 and into 2010, such as Kentucky Trailer's newly acquired 240,000 sq ft building at Riverport. Genpak LLC, a food service packaging company, moved into one of Circuit City's old warehouses. U.S. Lock, a security products company, closed two of their warehouses and moved to a consolidated distribution center. This is a common pattern that retail companies with their own warehouses take to reduce supply chain costs. CEVA Logistics, a third-party logistics contractor, followed Ford from Michigan when it moved the Navigator and Expedition production plants from Michigan to Louisville. Ohio Logistics, who owns their own fleet of trucks, expanded into a 200,000 sq ft warehouse in Louisville.

Memphis, Tennessee

Memphis, known as "America's Distribution Center," has extensive transportation access required by warehouse and distribution centers. The Memphis International Airport, the world's largest air cargo airport, houses the FedEx headquarters. In addition, they have the third largest rail center and fourth largest inland port in the country.

The warehouse market slowed in line with the economic recession. Barnes and Noble closed its online-fulfillment distribution center in 2007 after a seven year operation. In July 2009, Fry's Electronics Inc. purchased a 120,640 sq ft warehouse in Memphis. The factors in their decision included the highway infrastructure, the FedEx hub, and the available workforce. Orgill Inc., a warehouse wholesaler, consolidated its Memphis operations into a new location in Missouri. It leased a smaller warehouse in Memphis because the warehouse was free-standing, single-tenant, and had low-lease rates. Although the warehousing and distribution industry experienced a national drop in 2009, business began improving at the end of 2009 and into 2010. Medtronic, a supplier of medical equipment, finished construction on a \$65 million distribution center. Several property firms in Memphis expect an increase in lease activity, although lower than pre-recession, in 2010. Fiskars Corporation, a garden, home and office manufacturer, relocated from Wisconsin to a 260,000 sq ft warehouse in Memphis.

St. Louis, Missouri

St. Louis has a strong geographic advantage because of its transportation infrastructure. It has four interstate highways, the Lambert-St. Louis International Airport, a strong rail system, and the second-largest inland port in the U.S. Missouri utilizes 19 railroads to transport goods to other states. According to the Missouri Economic Research and Information Center, St. Louis is the third largest rail hub in the U.S., placing after Kansas City.

St. Louis also experienced a mix of growth and reduction in the warehouse market. At the end of 2009, Macy's sold a 1 million sq ft distribution center, which it put on the market in 2007 and finally sold for \$10 million under the asking. St. Louis serves as a hub for the Procter & Gamble manufacturing plant. From 2008 to 2010, Procter & Gamble invested \$80 million to improve its operations and plan to invest \$150 million in this location in the next five years. This in turn means that it will increase its distribution centers in the area, already demonstrated by its new distribution center for Home Care products which was acquired in April. Caterpillar Logistics Services Inc. opened its newly built distribution center in Clayton, which was located near St. Louis, because of tax incentives and favorable property value. In addition, this distribution site will consolidate the work from Indianapolis and some of its parts distribution from Morton, Illinois.

Nashville, Tennessee

According to the Nashville Area Chamber of Commerce, Nashville "is within 600 miles to 50% of the U.S. population." There are three major interstate highways, I-40, I-24, and I-65. In addition, the Nashville International Airport is a major attraction for warehouse placement. The rail system provides access to 23 states, the District of Columbia, and two Canadian provinces. The unemployment rate of Nashville and Davidson County in 2008 was 5.5%, noticeably under the national average, according to the Metropolitan Government of Nashville and Davidson County. Compared to the other major distribution cities in the region, Nashville has a tighter labor market.

Several of the largest third-party logistics providers have headquarters or warehouses in Nashville and the surrounding region, such as CEVA Logistics, APL, and OHL. However, the Nashville warehouse sector continued to lag in 2010, and there were no new warehouses constructed in the first quarter. Small projects and expansion plans occurred, such as OHM International's new warehouse construction plans, which will be a combination of a warehouse and showroom.

The Pennyriple Opportunity

Several companies have pre-existing warehouses in the Pennyriple region. In 2002, Wal-Mart opened a 1.2 million square foot distribution center in Hopkinsville. This location provides access to Interstate 24, a qualified workforce, and proximity to 92 Wal-Mart retail stores within a 200-mile radius. According to Good Jobs First, the Kentucky Jobs Development Act gave Wal-Mart \$15 million in incentives for its Hopkinsville distribution center and \$13 million for another distribution center located in London, Kentucky. Continental Mills, a manufacturer of baking goods, moved a distribution center to Hopkinsville in 2008 to take advantage of efficient transportation to U.S. markets. Carhartt distributes its outdoor apparel from a large distribution in Madisonville.

Warehousing & Transport in Pennyriple, KY Region		Pennyriple, KY			United States	
		Jobs 2010	Annual Growth (CAGR)		Annual Growth (CAGR)	
			'03-'08	'09-'19	'03-'08	'09-'19
481	Air transportation	10	0.0%	1.8%	-1.3%	0.8%
482	Rail transportation	247	1.8%	1.2%	0.5%	0.5%
483	Water transportation	13	-30.5%	-3.3%	4.8%	0.4%
484	Truck transportation	1,459	0.8%	0.1%	2.8%	1.5%
4883	Support activities for water transportation	136	31.8%	-0.9%	1.9%	0.5%
4885	Freight transportation arrangement	19	-0.8%	-0.5%	3.0%	1.3%
493	Warehousing and storage	835	40.9%	2.8%	5.6%	1.3%
49311	General warehousing and storage	773	42.2%	3.0%	5.9%	1.5%
49312	Refrigerated warehousing and storage	0	0.0%	0.0%	3.3%	0.6%
49313	Farm product warehousing and storage	10	0.0%	0.0%	2.0%	-0.9%
49319	Other warehousing and storage	61	11.2%	0.2%	4.5%	0.9%

Source: EMSI Complete Employment

The Pennyriple region has about 2,700 jobs in its combined warehousing and transportation sector. Warehousing and storage has proven to be the highest-growth segment in recent years, primarily at the Wal-Mart Distribution Center. Forecasts from EMSI for the next 10 years suggest that the region's warehousing sector will continue to see above-average growth: about 3% per year. This amount is more than twice the growth expected at the national level.

The geography and highway infrastructure are strengths of the Pennyriple region. Continuous highway improvements on Interstate 24, Breathitt Pennyriple Parkway, Highway 68/80, and Highway 41 created safe and efficient transportation means for distribution centers. The recently proposed Interstate 66 and Interstate 69 will span across the Pennyriple region and connect to the neighboring states of Tennessee and Indiana. Pennyriple is centrally located between several airports in the surrounding regions, which include the Louisville International Airport, McGhee Tyson Airport, Memphis International Airport, and Nashville International Airport.

The fluctuation of fuel prices brings attention to the importance of combining shipments and taking advantage of various modes of transportation. Water ports provide access to other state and

international trade, while bundling mass shipments to lower fuel costs. According to Bruce Lambert, executive director of the Institute for Trade and Transportation Studies, the “emerging hubs are Mobile, Memphis, Savannah, and Kansas City.” Louisville, Nashville, and St. Louis are being considered for a 2020 infrastructure project to connect ports in the U.S. with the Port of Montréal.

Availability of skilled, affordable labor can fulfill the expected national job growth of the logistics industry. Kentucky is taking initiatives to improve education standards. Within the transportation industry, more people are attaining secondary education.

Avalanche Consulting believes that traditional distribution centers will continue to find the region attractive, particularly along existing and future interstates. While many of these centers still do not provide high-wage jobs, increasing automation in the industry will require a higher skilled worker and result in higher salaries.



Niche Sector: E-Commerce Fulfillment Centers

Market Overview

The continued expansion of online retail in the U.S. is redefining how fulfillment occurs. Jobs at these centers can be diverse and offer more of a multi-tasking environment for its workers, better career opportunities and pay.

The most important element of online distribution centers is efficiency in operations within the warehouse and shipping. This process includes optimizing inventory tracking, returns, shipping, and limiting product damage. In addition, maximizing storage space is vital for keeping costs low. According to J. Michael Vargo, president of a software company, increasing efficiency requires three phases. Phase one is to create a strategy for procurement and shipments that addresses market demands. Phase two is geared toward designing the facility to match the strategy and inventory needs. This includes acquiring the proper software to track items and handle the distribution process. An Adaptive Warehouse Control System is a software solution that adapts to the constantly changing environment in the distribution center and provides updates and solutions accordingly. Phase three is the actual implementation of the plan. Constant reevaluation of the strategy and software systems are needed to stay up-to-date and efficiently fulfill market needs.

Technology plays a major role in retail sales, which created the growth of distribution centers for online retailers and brick-and-mortar retailers that also sell online. Online retailers, such as Amazon.com Inc., constantly expand their operations by adding more warehouses to their network to increase logistic efficiencies. In 2008, Amazon opened a fulfillment center in Goodyear, Arizona, which was an addition to its Phoenix warehouse. Amazon.com also built a distribution center in Pennsylvania, which in total was its fifth distribution center in Pennsylvania. Because Amazon.com heavily relies on efficient logistics, it needs to constantly revise its operations and reduce redundancy. In 2009, Amazon.com closed three distribution centers, located in Indiana, Nevada, and Pennsylvania, to make way for larger warehouses in better locations. It continues to grow, even crossing national borders into Canada, with plans of another online fulfillment center.

Target operates its own online fulfillment center for Target.com in Woodbury, Minnesota and Tucson, Arizona, which opened in 2007. In addition, it also outsources some fulfillment operations to Amazon. Macy's Inc. also increased investment in its online sales by opening two fulfillment centers, located in Portland, Tennessee and Goodyear, Arizona, which will service orders in the Western states. Its strategy for this new era is to grow a "direct-to-consumer business" plan, which involves the Websites: macys.com, bloomingdales.com, Bloomingdale's By Mail, macysweddingchannel.com, and bloomingdalesweddingchannel.com.

Some companies that sell through online websites even outsource the orders to third parties who already have extensive distribution networks. Third parties also provide customer service for

retailers. Although retailers can increase their logistics and lower costs, the major trade-off is the loss of control over customer relations. While Amazon.com Inc. has its own retail business, it also provides fulfillment services and manages the website for retailers, such as Toys 'R' Us. Another example is Best Buy.com, which uses a third-party, IM Logistics, and owns seven warehouses in the U.S.

The Pennyrile Opportunity

Small online retailers may only operate a single fulfillment center. For those seeking a single, central location in the U.S., the greater Pennyrile region is ideal. According to Chicago Consulting, the single best location for a company with just one distribution center is in Henderson, Ky., a few miles north of the Pennyrile region.

The Pennyrile region has a small, but growing handful of companies conducting online retail sales. Uncle Lee's in Muhlenberg County conducts a strong and growing business of selling to consumers nationally. Several smaller online retailers have been noted in the region, including Red Essentials, an online distributor of Case-branded products. Supporting existing online retailers during company expansion will be important for the region, and creating a base of software engineers to support these companies will be a necessary step. Successful retailers must deploy the best in technologies without affecting their overhead in order to ensure that they can continue to deliver low cost products to their customers. A base of software engineers and firms to provide this critical infrastructure is currently a gap in the region that must be addressed.



TARGET SECTOR: ASSEMBLY

Niche Sector: Automotive Manufacturing

Market Overview

The automotive industry has been devastated by the recession—its sales have slumped by 35%. While there is an expected boost in 2010, many analysts feel recovery to pre-recession levels will not occur until 2012. Among automotive suppliers, there is a necessity to consistently obtain more efficient processes and designs; the automotive suppliers who survived 2009 were those able to cut their fixed costs.

Internationally, the automotive supplier industry faces stiff foreign competition for inputs. The prices of rubber, steel, and other necessary raw materials have increased significantly, increasing costs for automotive suppliers. These increases have forced many automotive suppliers to restructure or even stop supplying to automobile dealers and instead investigate supplying to the military and alternative energy industries. This problem is expected to just get worse, so automotive suppliers will have to restructure or find a way to pass the cost to their customers.

Before the recession and projected to occur after it, the industry is experiencing higher profits, but fewer workers are employed and less firms operate. This is expected to continue as firms specialize and are constantly pressured to innovate and increase efficiency.








Location Trends

Automotive suppliers are reflexive in their location—they typically go where there are key automotive plants. This has been the case in the recent expansion of an automotive supplier to Alabama. There is also a trend for expansion in the South. One key reason is that blue collar workers in the South are less likely to vote for union representation. Currently, the automotive industry is concentrated in 3 main states (Michigan, Ohio, Indiana), but plays a significant role in 7 (Michigan, Indiana, Kentucky, Missouri, Ohio, South Carolina and Tennessee).





A recent automotive parts plastic supplier stated key standards for a North Carolina expansion including proximity to customers and room for expansion; the governor of North Carolina cited a highly skilled workforce and a top education program as driving incentives for the expansion. In another expansion to Alabama, an executive attributed the move to the proximity to major automotive manufacturers and the \$400 million incentive package offered by the state.

Target Evaluation:

Assembly

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Automotive	
Metal Fabrication	
Solar	
Custom Products	



Most of the recent expansions of supplier firms have just been modifications or add-ons to existing factories. SL Tennessee LLC and Southern Tool are two companies that have demonstrated this trend. With the presence of so many closed former factories, many companies are looking to remodel and reuse these factories versus making the larger investment to build an entirely new one. Pennyrile has already experienced this with the reopening of an aluminum welding factory in mid-2008. Many of these expansions have been driven by foreign-owned manufacturers who view this time as optimal to expand operations in the U.S. due to low interest rates and a favorable currency exchange rate.

The Pennyrile Opportunity

The Pennyrile region’s location is one of its key benefits to becoming a more robust automotive supplier region. Located near many huge automotive manufacturing plants, the Pennyrile region can leverage its existing highway infrastructure to achieve timely deliveries. Another intrinsic feature of the region is its expansive land to allow factories to expand. This allows companies to consider long-term growth options while benefitting from the existing technology of these factories.

The region currently has several automotive suppliers, many of whom are foreign firms (see side table).

The Pennyrile region’s labor force also has benefits for an automotive supplier. The region is saturated with a skilled, manufacturing workforce, and is against unions. Kentucky also has a low cost of living and low overall taxation.

Select Automotive/Vehicle Manufacturers	
<i>Pennyrile Region</i>	
Transcraft	Trigg
Hydro-Gear	Caldwell
Bodycote	Caldwell
Internat'l Automotive Components	Hopkins
Mid Continent Spring Company	Christian
T-Rad North America, Inc.	Christian
Pennyrile Machine Company Inc.	Christian
Douglas Autotech	Christian
MSSC	Christian
Metokote	Christian
Par 4 Plastics Inc.	Crittenden

Niche Sector: Fabricated Metal Products Manufacturing

Market Overview

The fabricated metal product industry refers to production of a variety of products composed primarily of metal other than completed vehicles and complex machinery. Fabricated metal products include tools, cans, structural metal products, and stamped metal parts.

The fabricated metal parts industry is a huge industry in the United States with annual revenue of \$340 billion. Most consumers are businesses, purchasing components to use in various industries including automotives, airplanes, appliances, computers, and machinery, but the industry also provides finished products like cans, containers and tools. The product composition of this industry is very diverse because it is driven by many other industries. According to Hoovers, industrial revenue is spread across diverse subsectors including machine shops (10%), metal valves and fittings (10%), ornamental and structured metals (10%), forging and stamping (5%), and sheet metal work (5%); the rest is captured by smaller companies catering to many different sectors.

The structural fabricated metal product industry (primarily construction materials for buildings) brought in \$28.9 billion in 2009 despite a 10% decrease from the previous year. This subsector of fabricated metal manufacturing can be further divided into 5 key components: fabricated structural metal bar joist and concrete reinforcing bars (65%), structural metal for bridges (3.2%), fabricated structural iron for ships, boats, and barges (1.9%), other fabricated structural metal products (20.5%), fabricated, unspecified structural metal (9%).

Like other industries, change has been accelerated by the recession. While efficiency and output were increasing steadily, the recession has spurred further labor reduction—making existing production centers even more lean and efficient. This trend is expected to continue, as the Bureau of Labor Statistics projects a further 8% decline in employment. This labor reduction is also driven by the increasingly capital intensive direction of the industry. Although displacing many employees, automation has increased the production value of many factories and helped them increase efficiency.

As shown in the following table, the fabricated metal subsectors that are expected to see positive employment growth in the U.S. over the next ten years include: fabricated structural products, architectural metal products, heavy metal tanks, springs, and ordnance.



Job Forecast: Metal Products Manufacturing United States		Annual Growth (CAGR)	
		'03-'08	'09-'19
332116	Metal stamping	-0.2%	-2.9%
3322	Cutlery and handtool manufacturing	-3.6%	-3.4%
332211	Cutlery and flatware, except precious, mfg.	-5.4%	-5.1%
332212	Hand and edge tool manufacturing	-3.3%	-3.1%
332213	Saw blade and handsaw manufacturing	-2.4%	-0.2%
332214	Kitchen utensil, pot, and pan manufacturing	-4.7%	-12.8%
3323	Architectural and structural metals mfg.	1.5%	0.5%
33231	Plate work and fabricated structural products	3.1%	1.3%
332311	Prefabricated metal buildings and components	3.5%	1.6%
332312	Fabricated structural metal manufacturing	2.7%	1.4%
332313	Plate work manufacturing	3.7%	0.8%
33232	Ornamental and architectural metal products	0.3%	-0.2%
332321	Metal window and door manufacturing	-3.6%	-3.4%
332322	Sheet metal work manufacturing	2.5%	0.9%
332323	Ornamental and architectural metal work mfg.	2.2%	1.0%
3324	Boiler, tank, and shipping container mfg.	1.4%	-0.8%
33241	Power boiler and heat exchanger manufacturing	3.7%	0.5%
33242	Metal tank, heavy gauge, manufacturing	7.0%	1.6%
33243	Metal can, box, and other container mfg.	-3.0%	-4.2%
332431	Metal can manufacturing	-2.4%	-2.8%
332439	Other metal container manufacturing	-3.6%	-6.2%
3325	Hardware manufacturing	-4.9%	-2.2%
3326	Spring and wire product manufacturing	-4.1%	-2.3%
332611	Spring, heavy gauge, manufacturing	2.1%	3.4%
332612	Spring, light gauge, manufacturing	-1.4%	1.5%
332618	Other fabricated wire product manufacturing	-5.5%	-5.0%
3327	Machine shops and threaded product mfg.	3.4%	-1.4%
33271	Machine shops	4.7%	-1.3%
33272	Turned product and screw, nut, and bolt mfg.	-0.1%	-1.6%
332721	Precision turned product manufacturing	-0.6%	-2.1%
332722	Bolt, nut, screw, rivet, and washer mfg.	0.4%	-1.2%
3328	Coating, engraving, and heat treating metals	0.5%	-1.6%
332811	Metal heat treating	1.2%	-0.3%
332812	Metal coating and nonprecious engraving	3.1%	0.3%
332813	Electroplating, anodizing, and coloring metal	-1.4%	-4.1%
3329	Other fabricated metal product manufacturing	0.2%	-1.3%
33291	Metal valve manufacturing	-1.1%	-2.3%
332911	Industrial valve manufacturing	1.7%	0.2%
332912	Fluid power valve and hose fitting mfg.	0.2%	-1.6%
332913	Plumbing fixture fitting and trim mfg.	-7.1%	-9.8%
332919	Other metal valve and pipe fitting mfg.	-2.6%	-4.9%
33299	All other fabricated metal product mfg.	0.9%	-0.8%
332991	Ball and roller bearing manufacturing	-1.3%	-2.4%
332992	Small arms ammunition manufacturing	4.1%	0.5%
332993	Ammunition, except small arms, manufacturing	-2.3%	-2.8%
332994	Small arms manufacturing	2.3%	0.2%
332995	Other ordnance and accessories manufacturing	6.9%	2.6%
332996	Fabricated pipe and pipe fitting mfg.	3.0%	0.5%
332997	Industrial pattern manufacturing	-3.5%	-6.6%
332998	Enameled iron and metal sanitary ware mfg.	0.2%	-1.1%
332999	Miscellaneous fabricated metal product mfg.	1.5%	-0.6%

Source: EMSI Complete Employment Forecast

Location Trends

The majority of fabricated metal producers are in California, Texas, Ohio, Pennsylvania, and Illinois. While some of these are established manufacturing powerhouses, all of these states have great access to ports and other forms of transportation. The distribution throughout the country is largely fragmented, with fabricated metal manufacturers located closer to the industry to which they cater.

KCC International, a fabricator of high-end HVAC ventilation systems, has announced a 20,000 expansion to its factory in Louisville. State incentives, a skilled workforce, and room for expansion were driving factors for this expansion. Abby Manufacturing expanded to Benton, Mississippi recently. This company fabricates motor parts and other high-end freight material. This was an in-state expansion of its former plant that was subsidized by the state. Carlisle Co., based in Charlotte, North Carolina, announced an expansion to Jacksonville, Tennessee in mid-2009. A strong wheel manufacturer for non-automotive sources, Carlisle explained its choice of Tennessee for its educated workforce and state-incentive package.

The Angell-Demmel plant in Marion County, east of the Pennyriple region, has also recently experienced a large spurt, being fueled by a contract with Mercedes-Benz to create aluminum trim for doors and instrument panels; this high end, decorative line is expected to bring from 52-110 jobs at the facility. This has cost the Kentucky government \$2.5 million in an incentive, with additional financing for the necessary capital investment.

The Pennyriple Opportunity

The Pennyriple region has an opportunity to play a role in the growing **metal building products** industry. This industry has huge growth potential due to two driving trends. The environmental benefits include saving energy costs due to the reflective material's reduction of energy needed to cool a building. After the aluminum roofs or walls with aluminum components are worn out, they are also recyclable, which reduces the additional waste that many used out shingle or asphalt roofs produce. Another trend that will drive this industry in the future is the long-term cost savings at a higher initial investment. Aluminum roofs last longer, approximately 50 years, and require less maintenance. Additionally, many insurers offer discounts of up to 30% on buildings with aluminum roofs, due to the reduced fire threat.

The region may also have an opportunity to recruit **additional HVAC manufacturers** to the region. The presence of Trane in neighboring Montgomery County has produced a skilled workforce and put the region on the map for this industry. Close proximity of competitors is not uncommon: in Tyler, Texas (with a county population of just under 100,000) both Trane and Carrier manufacture air conditioners. Furthermore, continued growth of the industry is driven by new technological advancements in efficiency as well as federal incentives to upgrade existing air conditioners. While

the market for residential homes has been decreasing, non-residential growth markets include education, healthcare, and power-related industries.

Finally, the region is well-positioned to attract manufacturers of **large metal tanks and boxes**. These items require the stamping of metal/aluminum, which is available from nearby foundries, and are bulky enough that shorter distribution distances greatly affected the competitiveness of companies.

Overall, the region's central location and strong infrastructure in rail, highways, and water will assist metal manufacturing companies to get large metal inputs into the region and exported out to customers across a multi-state area. Low power rates will further attract these types of companies.

Niche Sector: Solar Manufacturing

Market Overview

The United States has been a key player in the solar industry's early years, but since the mid-1980s the industry has been dominated by Europe and Japan. Although having limited involvement today, companies such as Boeing and Kodak were some of the first to start manufacturing and researching new technology in order for cells to become more efficient in capturing the sun's energy.

The solar industry is now a multi-billion dollar industry showing \$38.5 billion in revenues for 2009 worldwide – just in the photovoltaic (PV) market. Countries and economic developers are pursuing this industry aggressively as a way to replace old manufacturing jobs with new clean energy jobs. Government incentives are boosting the adoption of solar energy: in 2009 alone, the MW generated by solar grew by 36%.

There are three primary types of solar modules:

- Concentrated solar – concentrates the sun's heat
- Solar thermal – uses thousands of mirrors to heat liquids to create steam in turbines that works like an engine to generate electricity
- Photovoltaic cells – the solar panels that are typically placed on rooftops

Photovoltaic panels are the fastest growing market in the world today, and efficiencies are increasing dramatically which improves the ROI on new investments. Photovoltaic manufacturing is dominated by China, U.S., Germany, and Japan. Most of the large solar manufacturing companies contain production facilities in the US. China may not have the highest adoption rate of solar energy right now; however, the country recognizes the market potential of European countries such as Spain, Italy, and Czech Republic who have a strong focus on providing incentives and growth for their nations to install solar facilities. Companies such as Kyocera and Sharp from Japan who entered the U.S. market in the 1970s to manufacture TVs and other electronics, began to invest at the same time in solar research and manufacturing in Japan and now are leaders in solar manufacturing with facilities in the U.S. Sharp had the first foreign billion dollar investment into solar manufacturing in the U.S. with its facility in Memphis, Tennessee.

Location Trends within the U.S.

Inside the U.S., the solar manufacturing is led by California, but states such as Massachusetts, Michigan, Arizona, Ohio, Oregon, New Mexico, and Texas are now some of the new markets that solar manufacturers have selected for new facilities. We profile some of these leading states individually:



California

California has significant solar research at universities and good state incentives to entice consumers to install solar panels, including their “Million Solar Roofs” Initiative. Just in 2009, \$1.4 billion was invested by venture capitalists in the state’s solar industry. The state is a popular location for headquarters of major solar companies and research because of the energy policy of the state and the high technology industry. California has struggled to retain its solar manufacturing companies, losing to states with low transportation costs, cheap land, more industrial workforce, and good incentives. However, with examples like Kyocera who recently decided to open up a new manufacturing facility in San Diego after opening its first Mexico solar manufacturing facility, the state remains in play for manufacturing facilities.

Michigan

Hemlock Semiconductor, LLC, a joint venture between Dow Corning and two Japanese firms, has its headquarters and world’s largest polycrystalline silicon production in Saginaw County, Michigan. The Great Lakes Bay region has been hit hard with the decline of the American automotive industry, but they began looking for a new source of growth and provided support to Hemlock, Dow Corning Solar, Clairvoyant Energy and United Solar Ovonic, along with more investment in research and education in solar. With the fall of the auto industry in Michigan suppliers have gone out of business and large manufacturing facilities are sitting unused on the land. The solar industry has created new uses for the suppliers and manufacturing facilities. A company called Infinia takes the simple idea of using a Stirling engine in order to generate energy from a solar dish at a rate of 24% conversion. The automotive suppliers do not need to learn a new technology, but continue to do what they excel at which is building engines, plastic, and metal parts. For Infinia, the two main parts of their solar modules are the dish and the engine, which are manufactured by two of the largest auto suppliers, Autoliv and Cosmia. A quote from a professor at Duke University explains how similar the relationship between the automotive and solar industry can be: "All of this technology is made up of regular parts that manufacturing companies are making all the time," he says. "The difference between our economy and a green economy is not as substantial as people think."

What was once a 320 acre campus for Ford where the company would manufacture cars such as the Thunderbird discontinued its operations in 2007. However in 2009, reuse of the facility is occurring from a partnership between three renewable energy companies to build parts for solar and wind projects. Solar energy is the main focus of this facility. Clairvoyant Energy which will use Oerlikon Solar thin-film cells and with X-treme Power, a Texas based company, will aid in creating energy storage and power management for large scale projects. The whole project costs over \$750 million and has received \$100 million from the Michigan legislature in tax credits.

New Mexico

New Mexico positions itself as ideal for the solar industry because of the recognition of being a great location to capitalize on the significant amount of sunlight. In fact, its state logo showcases the sun and connects it to its business brand. With the foundation of solar research at Sandia National Labs, a growing base of solar companies, and a large state recruitment fund, New Mexico now competes

aggressively for new investment by solar companies. New Mexico has proven to even take projects from other states such as Solar Array Ventures from Texas planned on creating a 225,000 sq ft manufacturing facility, but has had trouble gathering enough debt financing to finish the project. Solar entrepreneurship is a focus: Noribachi, a private equity company, works to develop companies that utilize clean energy such as solar. The company's executives include leaders from Sandia Labs. One of the companies, Solar Distinction, in February of 2010 announced that they will build a manufacturing plant in Albuquerque.

Oregon

Often overlooked because of its proximity to California, Oregon has been successful in attracting manufacturers to move their facilities to the state. In 2009, Sanyo Electric Company finished a solar manufacturing facility in Salem, Oregon. In 2008, SolarWorld AG started construction on their manufacturing facility in Hillsboro, Oregon. SolarWorld AG expects to be fully operational by 2011 and generate 500 MW of power each year.

Texas

With the support of a strong university community, competitive salaries, and educated community, Texas has created a base of small solar companies. In Austin, HeliVolt produces solar panels. While smaller than Sharp and FirstSolar, HeliVolt is staking a position based on its new technology using thin films of copper indium gallium selenide, or CIGS. The technology created won awards such as the Top 100 R&D, and the Editor's Choice as the most revolutionary technology in 2008. Entech Solar in Fort Worth is another great example of a thriving solar company. Focused originally in concentrated photovoltaic, the business has expanded to offer services such as designing and building solar energy systems. The company develops their own concentrated solar modules and skylights to provide daylight as lighting, which increases productivity while reducing the need for incandescent light. Texas overall has the foundation to become a leader in the solar industry and will continue to move to attract bigger projects. The essential building blocks of solar energy are the wafers and Texas has a significant amount of semiconductor companies; therefore, the solar industry is very attractive to local semiconductor companies and government leaders. MEMC-Southwest division, which is based in Sherman, TX, has acquired a multi-billion multi-year deal to supply wafers to Suntech. Cypress Semiconductor has a large manufacturing facility in Austin and was a majority owner of SunPower before it went public.

The Pennyrile Opportunity

The Pennyrile region is in an excellent position right now to get a piece of solar manufacturing industry. The Hemlock Semiconductor provides good leverage to bring in new investment and solar equipment suppliers. Education in the region is focused towards solar development with the new Solar Institute of Tennessee created by a partnership between Oak Ridge National Laboratory, University of Tennessee, and Tennessee Valley Authority, and a Department of Energy grant for \$62 million. The institute will have a main location in Knoxville and a western location in Brownsville very

close to Montgomery County and the rest of the Pennyriple region. Throughout the region there are many community colleges to willingly support and educate people in the area to properly accommodate to the needs of the solar manufactures. In early 2010, Confluence Solar decided to move their solar manufacturing to Clinton, Tennessee. Confluence is a great example of the larger region's ability to continue to attract quality solar projects. Confluence Solar comes from Convexa, an alternative energy venture capitalist firm, which has many projects in solar, but the only project to move outside of California and specifically Tennessee.

A strong educational system is important, but when companies chose to move to a region the bottom line of cost of doing business is crucial and often the final decision maker. Electricity rates have been a driving factor for the power-intensive manufacture of silicon. The Pennyriple region can reduce transportation costs to customers in the U.S., provide cheap electricity, and provide incentives that allow the company to save money on their earnings through lower taxes and cash disbursements per the amount of jobs that the solar manufacturer will create. Communities within the Tennessee Valley Authority service area can provide very low cost of electricity. On average the cost per kilowatt hour in Tennessee is 9.7 cents compared to the national average which is 11.6 cents. Relocating companies can get a \$6 per KW incentive by TVA. Wacker Semiconductor, a German company, decided in 2009 to open a polysilicon manufacturing plant in Bradley County, Tennessee for these reasons: "extension of our natural hedge via production outside the euro zone; minimizing transportation cost and lead times for our U.S. customers; abundant and low energy cost; excellent infrastructure / transportation network; and, support of local government, business and agencies." A crucial and deal-breaking piece of the puzzle is the incentives and through incentives and tax breaks, solar manufacturing companies will come to the region.



Niche Sector: Specialty/Custom Manufacturing

Market Overview

Small manufacturers in the U.S. are finding that they can be successful if their products have high degrees of customization or specialization, i.e. are not commodities that can be reproduced in China. Typically, products are produced by a small number of individuals, for a small set of customers, at a premium price in the marketplace.

These “specialty manufacturers” can:

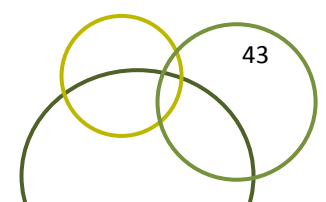
- Offer a final product customization step for the customer before shipping;
- Combine unique elements or ingredients to make a product that doesn’t exist in the marketplace;
- Use a green manufacturing process or recycled materials that consumers are willing to pay a large premium for;
- Provide “after-market” products that provide customization to a common household item or purchase;

Specialty manufacturing is the natural response to a massive competition and the inevitable question, “how can I be more unique in the marketplace?” Many new products are started by individual entrepreneurs with a new idea. New foods (such as teas, cookies, etc.) are usually invented in the home, then batch-processed in the garage or a community kitchen as the market is established and customers are lined up.

The Pennyrile Opportunity

Avalanche Consulting believes that the Pennyrile region has the opportunity to nurture fledgling entrepreneurs in manufacturing. The region’s core strengths – central location, strong transportation network, agricultural resources, and a low cost of doing business – will be just as beneficial to manufacturing startups as relocating companies. We believe the following product areas should offer opportunities to entrepreneurs: foods (connecting to local agriculture resources), automotive/motorcycle products (several small manufacturers exist today in the region), agricultural implements (one local company was acquired by John Deere), large furniture or construction materials (bulky and expensive to ship), etc.

Today, there are 95 manufacturers in the Pennyrile region that employ less than 10 workers. There are likely to be hundreds of additional self-employed individuals that are making products in their homes for sale at local markets.



TARGET SECTOR: TOURISM

Americans spend billions each year in travel and entertainment. A recent study by the U.S. Department of Labor and U.S. Bureau of Labor Statistics revealed that the average American spends roughly \$6,400 on recreation and leisure. When considering over 300 million people in the United States, the annual figure spent on such activities is steep. Americans choose to spend their leisure time in many different ways. Sports, traveling, music, and outdoor recreation lead the industry in the United States, and all are activities currently present in the Pennyrile region.

The Pennyrile region has the potential to attract more events and tourists, but the region has some significant shortcomings that will hinder their chances. The cities of Hopkinsville and Clarksville both have ample lodging to accommodate visitors of events. However, the other towns in the region only have a couple quality hotels to offer to tourists. Given the lack of hotel rooms and entertainment, we have identified three types of **Event Tourism** for the region to target where people choose to camp or bring their recreational vehicles:

Events

- 1) **Competitive Fishing Tournaments**
- 2) **Softball Tournaments**
- 3) **ATV Park / Jeep Jamborees**

Other events such as music festivals, sporting events, and trade shows are opportunities for the region, but will have to be scaled to a size where overnight guests can be accommodated.

In addition, we believe that destination tourism – geared toward attracting individuals and families to recreation and resorts – is an untapped opportunity for the region surrounding the Land Between the Lakes. We see several areas for new or expanded “destination” tourism:








Destination Tourism

- 4) **AgriTourism and Adventure Tourism: Farm Visits and Markets, Thrift Shopping, Camping, Recreational Fishing, and Boating**
- 5) **Resort Hotels**



We profile these niche targets individually in the following pages.

Target Evaluation:

Tourism

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Events:	
Fishing, softball, ATV parks	
Destination Tourism:	
Agritourism, adventure tourism, hotels, thrift shopping	

Niche Sector: Competitive Fishing

Market Overview

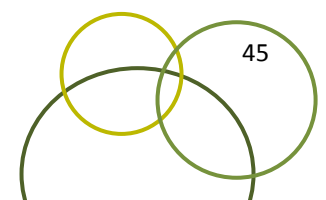
Americans have enjoyed fishing recreationally for many years. However, since the early '70s a new trend has emerged amongst anglers: competitive tournament fishing. Many elite tournament trails associations have emerged and have shaped fishing into an individual sport. Professional anglers travel around the country fishing different lakes and reservoirs in hopes of catching the largest limit of fish. For our purposes this report will focus on bass fishing, as it is the most prominent to the Pennyrile region.

Some of the larger tournament trails and associations now generate enough interest so that spectators now travel to watch these anglers fish just like any other spectator sport. As a result, weigh-in sites have become a haven for vendors and other entertainment venues. A recent study conducted by the Wisconsin Department of Natural Resources recorded the expenditures by boaters, non-boaters, and staff/sponsors for 7 different large tournaments in the state of Wisconsin. The breakdown of these tournaments included 1 Bassmaster Elite 50 Series, 2 FLW Series, and 4 other smaller national association tournaments. The Bassmaster Elite Series generated the most interest as it drew and estimated 14,000 spectators who spent \$1.32 million in Chippewa Falls, Wisconsin. The professional anglers also spent \$135,000 over a seven-day period for a grand total of \$1.45 million in direct economic impact. The two FLW and the Sturgeon Bay events resulted in less spectator support but still generated an average of \$450,000 of direct economic impact for the local lakes and host towns. The remaining 3 tournaments generated an average of \$65,000 in direct benefits for the local communities.

Location Trends

Competitive bass fishing is virtually located throughout the lower 48 states. Generally, states with warmer climates have more favorable fisheries than colder states. Texas, Florida, California, Alabama, and Arkansas are the most popular states for bass fishing. However, the remaining Southern states including Mississippi, the Carolinas, Tennessee, Kentucky, and Louisiana also have excellent track records in bass fishing. In the past 10 years, states that use large hatcheries to repopulate their bass populations have distanced themselves from other states. Texas and California have implemented programs which help repopulate fished reservoirs. As a result, these states are producing larger bass than ever before and generating more interest from fisherman regardless of skill set. These two states have hosted 12 Bassmaster Elite Series tournaments since 2006. This fact alone solidifies that these two states' repopulation program has maintained large bass populations and sparked interest on a national level.

In 1996 a new tournament trail, the FLW series, emerged and in recent years has begun to rival Bassmaster and the premiere tournament trail. The FLW series concentrates on a regional basis as

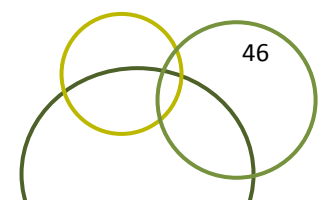


most of its tournaments are held in Arkansas, Tennessee, Alabama, Kentucky, Missouri, and Georgia. The trail consists of 6-7 regular tournaments starting in February and a National Championship held in August. Much like Bassmaster the trail has a limit as to how many anglers can fish any particular tournament. However, it differs from Bassmaster in the fact that most of the tournaments are held in the Southeast part of the country. This regionalization seems to have helped the association in its quick rise to the top. Anglers can concentrate on one kind of fishing style on the FLW series whereas Bassmaster Anglers fish many different types of fisheries.

The Pennyrile Opportunity

The Pennyrile region has a unique opportunity of having two large lakes in its region in Kentucky Lake and Lake Barkley. These lakes offer large bass, which intrigue professional anglers and their tournament trails. In the past, Kentucky Lake/Lake Barkley has hosted 4 FLW tournaments and 4 Bassmaster Elites. The 4 FLW tournaments were held in Kentucky Lake Dam Park and directly benefited the region. However, the Bassmaster Elites have been hosted on the Tennessee portions of the lakes and as a result the Pennyrile region has received no direct benefit of these tournaments.

Pennyrile currently has the resources to host all of these tournaments. As stated earlier, the FLW generates a great deal of income for communities, but the Bassmaster Elites generate far more. Pennyrile has the hotels to entice further FLWs and Bassmaster Elites. Grand Rivers, Calvert City, Kuttawa, and Gilbertsville are all located within a 10-mile radius and have adequate hotels between them to satisfy the lodging need during these large tournaments. Also, the area has ample restaurants to satisfy anglers and spectators' appetites. Paducah is also located roughly 30 minutes west of the area and offers many more choices regarding restaurants and more lodging. Finally, the lakes have two large marinas and the area is easily accessible which should entice these large tournaments. Interstate 24 runs parallel to the lakes and offers quick traveling to and from the site. The two marinas in which they have are Kentucky Lake Dam and Mineral Mounds Marina. All in all, Pennyrile has the ample assets to entice and host these large tournaments, especially the Bassmaster Elites. The addition of more, larger tournaments not only would spark tourism but would also provide the need for more motels, restaurants, and jobs- building a larger asset base to help draw in more tourists and events.



Niche Sector: Softball Tournaments

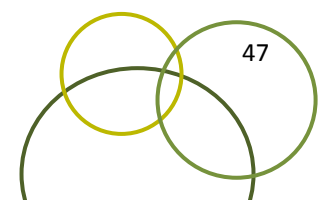
Market Overview

Softball is a very popular sport in the United States of America. Men and women alike enjoy playing softball competitively. Large associations such as the NSA and ASA have large membership numbers with ASA's totaling over 3 million in the United States. The ASA has over 250,000 teams today, which play in tournaments virtually all year round. The sport is differentiated into age groups for Youth members and by skill level for adults. Youth members often have aspirations of playing collegiately or for their country in the Olympics. Most states have at least one association, which directs tournaments for members and assists qualifying members in advancing through playoffs, or up in skill set classification.

Location Trends

Kentucky is slated to host over 70 softball tournaments for all age groups in 2010. Many of these tournaments are multi-day events, which force participants to stay overnight. Roughly 80% of the tournaments are held in three locations throughout the state. These locations include Louisville, Owensboro, and Hopkinsville. These cities host qualifiers, state, national, and leisure tournaments. They have at least one complex with multiple fields in order to manage multiple games at once. Tournaments in these locations can generate anywhere from \$10,000 to \$500,000 or more depending on the length of the tournament. Short daylong tournaments do not help local economies as much as multi-day events do. Multi-day tournaments force participants to stay overnight, which generates far more money for local municipalities.

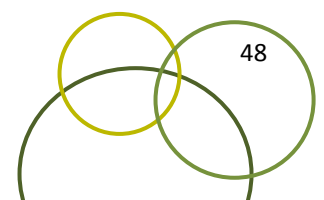
The areas in Kentucky receiving increasingly more tournaments include Louisville and Owensboro. Owensboro has a new facility with four lighted fields that has attracted several NSA and ASA tournaments. While Louisville has a couple of facilities it seems to be chosen more for its size than for the facilities it offers players. Another, smaller community, Logansport, Indiana, has recently opened a new facility and earned the right to host tournaments. Logansport has incorporated a strategy that favors the community and maximizes the amount of money it will receive during a tournament. The community did not install lights at the newly founded complex. Most complexes have lighting to attract more teams and tournaments. This strategy works for the most part since more games can be played each day. However, Logansport's strategy does not allow for games to be started after 6 pm. On the flip side, the community has begun hosting festivals, fairs, firework shows and concerts during the same time as these tournaments. Logansport has found that players and their families enjoy having other forms of entertainment instead of simply playing softball or baseball all weekend long.



The Pennyrile Opportunity

The Pennyrile region has the opportunity of investing in additional softball/baseball complexes in order to help spark economic growth. The region already has tournaments that are hosted in Hopkinsville, but the opportunity to host more is available. Madisonville recently broke ground on a new sport complex in 2006. The town now can submit its name as a potential candidate to host a tournament with the NSA, ASA, and other associations. Madisonville has multiple hotels and restaurants, which offer lodging and meals for participants. On top of developing new facilities and trying to obtain new tournaments, Pennyrile needs to be proactive in maintaining the events it already hosts. Every year Hopkinsville hosts the high school softball state championships. Per “The State Journal” in Frankfort, Kentucky, Frankfort just finished developing a new sport complex and has submitted a bid for the 2010 and 2011 tournaments. Hopkinsville officials have stated publicly that the tournament generates roughly \$400,000 for the city over the tournament weekend each year.

Finally, every community has youth that participate in sports. Investing in ballparks not only offers a chance for economic growth, but also provides quality facilities for their youth to play. Other sports offer economic benefits as well. Baseball is much like softball. Many individuals travel to participate in tournaments, which stimulate local economies. However, at this time, the Pennyrile region does not have the field quantities to host large baseball tournaments. The complex in Hopkinsville only has one baseball field compared to 5 softball fields. While Madisonville has two baseball fields and may be able to host smaller tournaments, additional fields will be necessary to host more baseball tournaments for both areas. Volleyball and basketball tournaments also would be alternatives for the area, however; the lack of gymnasiums and hotels will deter larger associations from hosting events in this area.



Niche Sector: ATV Park / Jeep Jamborees

Market Overview

Many Americans enjoy spending their recreational time enjoying the outdoors. Off-road vehicle rides are growing in popularity as a way for people to spend their time and money in leisure play. Two of the most popular types of rides include ATV (All-Terrain Vehicles) and Jeep Jamborees. Both types of off-road riding have grown from modest starts. According to Jeep Jamboree USA, the first trail ride was in 1953 in the Sierra Nevada Mountains. In 2010, Jeep Jamboree USA plans on hosting 28 different rides across the United States. These different rides last 2-3 days and allow Americans a quick, fun weekend getaway while enjoying the outdoors. Jamborees on average attract 230 participants and 1000 jeeps. Also, Jeep Jamboree USA claims that 65% of participants have ridden in a jamboree before, indicating that their participants are committed to traveling to multiple jamborees across the country.

ATV parks are growing very rapidly across the East Coast and the southern United States. According to the ATV Association, ATV parks are growing in popularity because they offer a different kind of riding experience. ATV rides allow riders to be exposed to the elements whereas Jeep riders can be protected from the elements to an extent. Over the last 10-15 years, confrontations between landowners and ATV riders have been on the rise. ATV riders often cross property lines without permission and damaged landowner's properties. The emergence of ATV parks has helped decrease the number of confrontations between riders and landowners as well as create job growth and help local economies. ATV Parks also allow for horseback riding, hiking, and camping.

Location Trends

Jeep Jamborees often are held in rocky, steep, and/or muddy terrain. Jeep riders want to experience challenges when driving off-road. Many rides are held in Nevada, Colorado, California, Western Texas, Wyoming, and other western states. The jamboree was originally designed to spark local economies. Since 1953, Georgetown, California, has generated over \$30 million, since 1953 by holding annual jamborees. Most locations must lobby to Jeep Jamboree USA to prove the site can sustain and attract a large group of people. In most recent years, locations east of the Mississippi have been able to entice the association to host more events than western locations. The ability to host the events has been a result of larger population numbers and greater demand for a ride. New York, West Virginia, Michigan, Wisconsin, Indiana, and Kentucky have all hosted or will host a jamboree in 2010.

ATV parks have grown particularly in the southeastern United States and California. Large wooded tracts of land and rural landscape areas seem to have the most demand for ATV parks. Gilbertsville, West Virginia and eastern Kentucky in Harlan County (on the Virginia state-line) have both established large ATV parks within the last year. These parks offer permits by the week or annually

to cater to riders who choose to ride multiple times a year. These parks both host biannual rides, which attract hundreds of riders for a weekend ATV festivals. These festivals can generate anywhere from \$250,000 to \$1 million for local economies. Gilbertsville, West Virginia, established its park with over 200 miles of trails on 43,000 acres. This land is in an old coal-mining field and most of the land could not be used for building of infrastructure or buildings. Since the land could not be developed, it was left in its natural state and made into these recreational parks. The park also allows for horseback riding and other small off-road motorized vehicles. Maysville, Kentucky (southeast of Cincinnati along the Ohio state-line) and Harrisburg, Illinois (near the Kentucky state-line) also have large ATV parks that offer wooded and challenging terrain. The demand for riding ATVs and other off-road vehicles continues to grow especially east of the Mississippi River and associations such as ATVA think this trend will continue for the foreseeable future.

The Pennyrile Opportunity

Pennyrile has the unique opportunity of developing an ATV park in their area. The region has large areas which are currently being used for mining. Eventually these mines will run out of reserves and the land will ultimately be deemed unfit for building development. When this happens, the region will have few options of what to do with the land. An ATV park would be a perfect use of this land. It would allow the region to use its land to stimulate its local economy and generate jobs. A park would be a valuable bargaining chip in terms of negotiating for future Jeep Jamborees as well as the opportunity to host annual ATV festivals, which can provide large economic boosts.

A new park location in Benson, Minnesota (100 miles west of Minneapolis/St. Paul) opened in late 2003. The area was once used for mining activities before being transformed by the city of Benson's economic growth plan. The town as well as many other cities and states have stated ATV parks actually help preserve National Forest areas. Their main arguments proclaim that parks allow riders the opportunity to ride in forested areas without damaging private property or National Forests. The park was created through the issuance of bonds by the municipality and state. The state designated the land for Off-Road Vehicle purposes due to its past history of mining. The state requires all ATV owners to register their vehicle and obtain a permit to ride in these areas. The money generated by these permits and registrations is reinvested in maintaining ATV parks in order to encourage riders to continually use these existing parks instead of riding illegally in undesignated areas. According to the Kentucky Department of Motor Vehicles, owners are not required to register ATVs and riders are generally free to ride ATVs anywhere where permission is granted.



Niche Sector: Resort Hotels

Market Overview

Each year many Americans travel for various reasons. According to the U.S. Travel Association, Americans with families take on average 4.5 trips each year. The same study shows that business travelers spent \$246 billion in 2008. Demand for all aspects of traveling decreased in 2009 as a result of the severe recession the U.S. economy is experiencing. Forecasting numbers increased modestly for 2010 as the nation is still reeling from this economic downturn. The decrease in business traveler's expenditures has been traced to job losses and corporations finding ways to cut expenses. Also, the decrease in leisure travel can be linked to job insecurity. Many Americans simply canceled their vacation plans over the last couple of years or visited locations closer to home. However, even amongst the trying times, the hospitality industry is projecting growth through 2013.

Hotels and resorts accounted for 1.9 million jobs in 2008 according to the U.S. Department of Labor. Most hotels are located in densely populated areas. The hospitality industry often provides first jobs to many new entrants to the labor force. Also, 19% of hospitality employees are under the age of 25 compared to 13% across all other industries. Education requirements often are minimal, but advancement opportunities into management often favor candidates with college training. Employment is expected to increase by 5% between 2008 and 2018.

Location Trends

Location expansions are predominantly taking place in suburban areas where new businesses are being established and in areas where tourism is growing. Another trend in the industry is the combining of resorts with other forms of entertainment and spas. Many resorts are seeking either the partnership of spa companies or simply adding their own spa. The International Spa Association proclaims that resorts with spas make up the second highest market segment behind day spas.

Recently, a new resort spa combination was opened in White Springs Virginia. The resort is in a fairly remote area with respect to population, but the resort is easily accessible to potential visitors. The resort is located roughly 100 miles Southwest of Charleston, Virginia, and 80 miles Northwest of Roanoke, Virginia. The location is located on 6,500 acres of land that allows visitors to be isolated from all other distractions and offers a traditional southern feel. The resort spa offers a variety of massage treatments, pampering, and mineral water therapy. However, much like the successful resorts in Florida, Arkansas, and Colorado, the resort offers a variety of other entertainment/recreation activities for their visitors. The resort offers fly fishing, pheasant or quail hunting, white water rafting, and horseback riding to name a few. The Greenbrier has packaged many different recreational activities into one location to attract many different types of visitors no matter what activities they enjoy. The availability of many different activities has become more

common for destination/resort spas over the last 10-15 years, thus suggesting that resort spas are transitioning to an ultimate vacation experience and not solely a spa treatment destination.

Another location in Branson, The Chateau, has followed a similar model. This location was opened in 2008 and offers many of the same amenities that the Greenbrier does. The Branson, Missouri, location does not follow the remote location trend many new resorts are following. However, one can see why it is an exception to the rule, as the resort was built in a very popular tourist destination. The fact that the surrounding areas are very popular for tourists suggests that tourism is a driving factor for resort companies when choosing locations for expansion.

The Pennyrile Opportunity

The Pennyrile region has both the need for additional hotels and the luxury opportunity of adding a large resort/spa combination. In order for the region to experience growth more hotels and lodging will be necessary. With the exception of Hopkinsville, many communities have very few quality hotel options for tourists and business travelers. The region is home to the very popular Land Between the Lakes. The park is the central location of a \$600 million tourism industry. By adding more hotels/resorts not only could the region spark further tourism, but also the need for additional jobs and businesses. Also, the recent repeal of prohibition in Trigg County will help the area in drawing new restaurants, hotels, and resorts.

Areas around Kentucky Lake and Lake Barkley offer miles of lakefront property. Resorts recently have tended to locate themselves in locations in which they can offer a variety of services and recreational activities to their visitors. Also, these resorts prefer to locate in areas which are more secluded from urban areas so visitors can relax and enjoy Mother Nature. The Pennyrile region especially Kentucky Lake and Lake Barkley would be ideal locations for a resort to expand. The areas around the lake offer boating, hiking, fishing, and hunting. All of these activities would appeal to resort owners, as they would allow them to offer a variety of options to visitors. Also, both lakes are located near Interstate 24 which would allow visitors to easily reach the resort. The easy access to major roadways is extremely important for areas wishing to attract resort spas and visitors. Another asset the lakes have is being located near Paducah. Paducah is located roughly 30 miles from the northern most part of Kentucky Lake. Even more important, Paducah owns the nearest airport to the Land Between the Lakes. The close proximity of this airport would also be a drawing point for resort owners as visitors would be able to fly into the area and not be forced to drive the entire distance to a potential resort. Thus, the Pennyrile region would have a larger potential market than resorts not located near an airport. All in all, a resort spa seems to be a good fit for Pennyrile.

Niche Sector: Camping, Recreational Fishing, and Boating

Market Overview

For many years, Americans have enjoyed the outdoors as an affordable means of entertainment. Three of the major activities include camping, fishing, and boating. According to the Recreational Boating and Fishing Foundation over 25 million Americans spent 427 million days boating in 2009, an average of 15 days per participant. These boaters spent the majority of their time fishing, cruising, nature observing, swimming, and sunbathing. The states seeing the most boating days include Florida, California, Wisconsin, Michigan, Minnesota, and Texas. Kentucky currently ranks 28th in boater registration and participation.

Recreational fishing is another popular activity for Americans. In another study performed by the Recreational Boating and Fishing Foundation, respondents indicated their reasons for enjoying fishing. The two most preeminent responses included: enjoying the outdoors 67% and spending time with family and friends accounted for 46%. Rural areas have acknowledged that their large bodies of water can be promoted for family oriented purposes and enjoyment through fishing. Large lakes, which have a rich history of producing large bass, have been successful in generating large amounts of revenue simply from anglers who visit their lakes. Lake Fork in Mineola, Texas (40 miles Northwest of Tyler, Texas), Lake Guntersville, Alabama (10 miles Southwest of Huntsville, Alabama) and Lake Okeechobee, Florida (100 miles Northwest of Miami) have all successfully promoted their lakes as fishing havens. Also, evidence seems to suggest that fishing is recession proof. A recent article by Trout Underground revealed that more people are fishing during trying economic times. The article cited two reasons 1) Fishing allows anglers to escape the stresses of work or unemployment. 2) Fishing helps lower grocery bills for those needing to save a little extra.

Camping has remained very popular amongst Americans as well in recent years. In 2009 the National Parks and Wildlife Service reported over 12 million visitors who stayed overnight. The breakdown of these visitors follows: 3.1 million tent campers, 2.1 RV campers, 2.3 miscellaneous overnight stays, 3.5 concessionaire lodging, 1.3 concessionaire campers, and 1.8 backcountry campers. These numbers represent a bounce back from a decrease in campers in 2008. However, camping growth rates have been stagnate or even decreased since 2000. These numbers can most likely be explained by a weak national economy. A March 2010 Gallup Poll showed that 27% of Americans will be traveling less in 2010 than last year and 2008. These numbers suggest that Americans still are uneasy about the state of the American economy and that camping growth will remain near its current levels or decrease.

Location Trends

Areas seeing the most growth in boating and fishing include the lakes most visited by popular tournament trails such as Bassmaster and FLW. Many anglers want to fish the same areas their

favorite professionals do in hopes of catching similar large bass. These lakes include Lake Falcon, Texas (along the Texas/Mexico border 100 miles west of Corpus Christi) and Lake Guntersville, Alabama. Boating growth is taking place in areas where several different forms of entertainment exist in one location. An example of a growth area would be the Chateau Resort in Branson on Lake Tahoe. The Resort is located on Table Rock Lake, which allows for easy access to the lake and is close to the popular town of Branson, Table Rock State Park and Mark Twain National Forest.

The Pennyrile Opportunity

The Pennyrile region is blessed in the fact that it can promote all three of these activities in order to grow economically. The region is home to the popular Land Between the Lakes State Park, Kentucky Lake, and Lake Barkley. Due to the fact the region has a state park and two large fisheries, many patrons will more than likely choose to visit Pennyrile since it has multiple forms of outdoor recreation. The state park has 5 campgrounds but due to the parks vast size more could be added. Many modern campers do not want to leave modern living completely behind and camp in the backcountry. Therefore, designated campgrounds with tent pads and slots for campers are becoming very popular. Investing in additional modern campgrounds could pay dividends for the area in the future as more and more Americans seek cheaper recreation.

Also, with the recent successful bass tournaments held on Kentucky Lake and Lake Barkley, more recreational anglers will want to visit these fisheries much like Lake Falcon and Guntersville respectively. Anglers often do not want the inconvenience of camping and wish to stay in hotels. In 2006, 141,000 anglers visited Kentucky and on average spent \$600. The recent success of Bassmaster and FLW anglers usually spark out of state interest following successful tournaments per their websites. However, the area around the Land Between the Lakes has few hotels to mention and this undoubtedly will hinder their ability to attract visiting anglers from areas other than Pennyrile. New hotels will more than likely be needed if the area wants to attract more anglers from Missouri, Tennessee, and Indiana.

Finally, as stated in previous section, the expansion of a large resort combining multiple recreational activities would benefit the region. The east side of Lake Barkley has few lodging choices for visitors to the region. The addition of a location offering boating, hiking, fishing, golf, spa treatment, and more would undoubtedly attract new visitors to the region. The recent repeal of prohibition in Trigg County should help in the attracting of such an establishment to the area. A resort would offer all forms of recreation for families no matter their recreational preference and provide a much-needed spark to the region's economy.