DOUBLE-STACK CONTAINER TRAINS POTENTIAL FOR AGRICULTURAL EXPORTS

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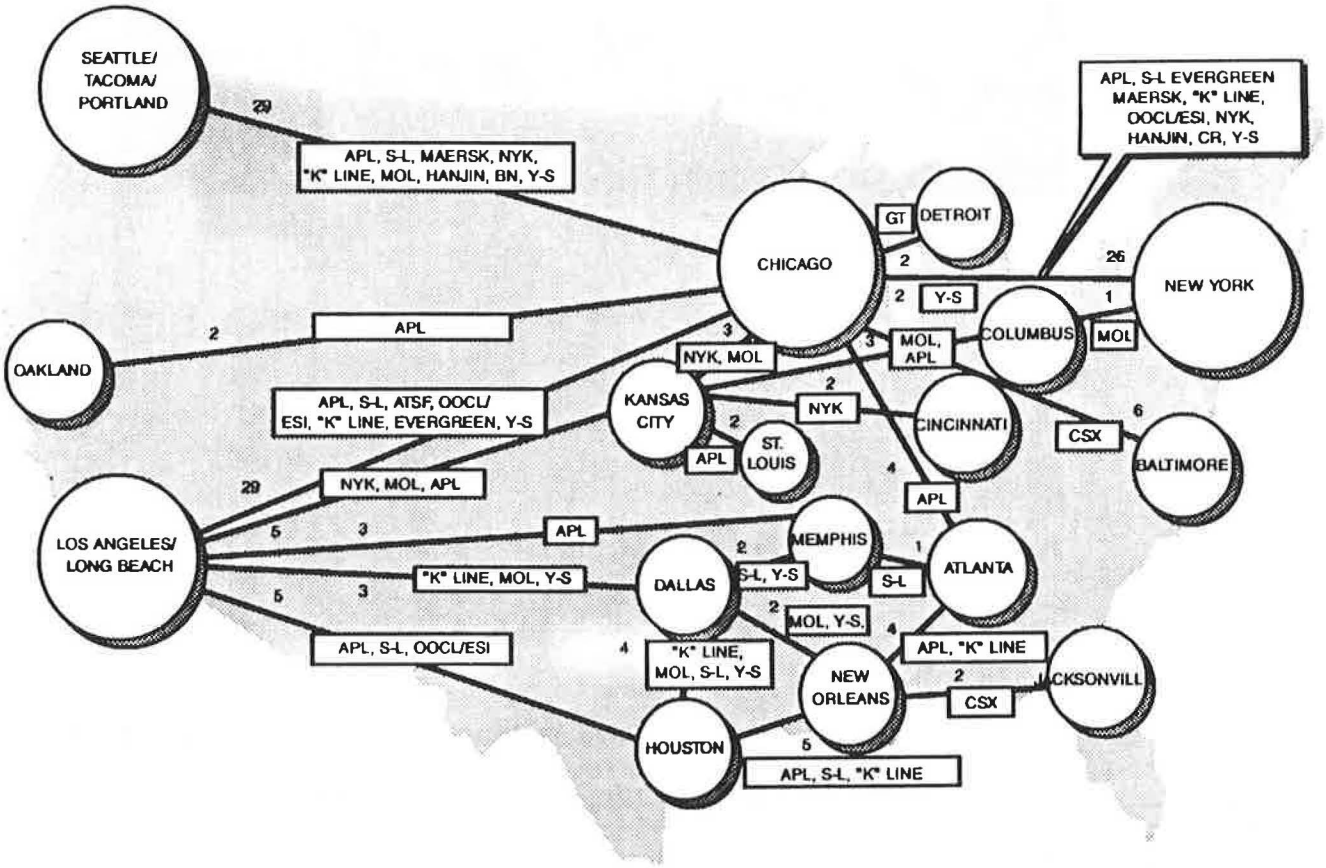
Double-stacking containers on specially designed flatcars has produced great changes to intermodalism in this country. This development is comparable to the introduction of containers by McLean Trucking in 1956. Increased use of intermodal transportation and domestic containerization for the U.S. shipper may become more pronounced with double-stack service. The rapid emergence of double-stack service and the opportunity for more efficient domestic moves provides the shipper with unique rate opportunities and expedited service that is more competitive with motor carrier service. This is not to say that double-stack service is more advantageous in all instances. However, it is a new technology with the potential to serve shippers better.

The integration of double-stack container services with railroad line-haul hub centers and port load centers is a major development in the evolution of U.S. intermodalism. Since April 1984, when the first dedicated rail service was inaugurated between Los Angeles and Chicago and featured the first non-railroad owned double-stack container trains, this service has flourished. Today, there are 104 double-stack trains in operation leaving the West Coast each week. In



NOTE: REFLECTS UNIT TRAINS AND LARGE BLOCKS RANGING IN SIZE FROM 50 TO OVER 300 UNITS (FEU).
SOURCE: TEMPLE, BARKER & SLOANE, INC.

FIGURE 1. Major double-stack services, January 1988 (departures per week, eastbound).

July 1987, there were 54 trains in operation. Two more trains will begin weekly service August 1st. Figure 1 shows the routes of stack trains as of January 1988.

The challenge of the double-stack railcar can be divided into two broad categories: operational and economic. In the operational area, the articulated double-stack flatcar is designed with five platforms, each capable of handling two 40-foot containers. A typical train consists of 20 cars with total capacity of 200 containers. The biggest operational problem with stacking containers two high is that tunnels and bridges, under which the trains must pass, are often too low. For this reason, drop-frame or deep-well flatcars, similar in design to those used by trucks in hauling heavy equipment, are employed.

Also, double-stack service has mandated greatly expanded terminals with bigger, faster, and stronger port cranes. These cranes can lift 20 to 30 forty-ton containers each hour and have outreaches of 145 feet to accommodate the larger Panamax-sized ships. This intermodal interface is requiring efficient terminal configuration with the means to maximize intermodal transfers with minimal cost and disruption.

In the area of economics, the challenge of double-stack service lies primarily in the cost field. Experience has shown that double-stack carriage operations can offer savings in the 20-40 percent range when compared with TOFC/COFC. A study prepared for the AAR and Trailer Train estimates that double-stacking containers reduces crew costs by 50 percent, fuel costs by 35 percent, maintenance by 35 percent, and miscellaneous cost by 28 percent.

In addition to cost savings, double-stack trains offer faster transit times which can be translated into inventory-in-transit finance savings for shippers. Also, improved equipment utilization rates reduce operating costs for carriers. For instance, double-stack trains regularly travel from Seattle to Chicago in 60 hours.

An incidental cost savings, especially for the agricultural shipper, is the improved cargo damage protection inherent in double-stack trains. The minimal vertical vibration and the lateral stability, which is a unique feature of the articulated double-stack flatcar, reduces in-transit damage.

The potential benefits for the agricultural shipper is the service's capacity to efficiently move containers. Double-stack service provides better use of railcar space, improved cargo damage protection, and expedited movements.

The promise that double-stack service offers agriculture is the increased number of containers moved per train which permit a significant lowering of unit costs. The economies of scale provide the agricultural shipper with increased speed and efficiency in handling containers at ports and hub centers, and expedited movements to inland destinations.

Although the prospects for agriculture are many, double-stack service still has problems in moving perishables. The first of these obstacles is weight. The

weight of a refrigerated marine container with a self-contained motor generator is between 12-15,000 pounds versus 6,000 pounds for a dry freight container.

This poses a problem for the shipper because it severely limits the size of a payload which can be loaded into a refrigerated container. With a 100,000 pound weight limitation per flatcar, two fully-loaded containers often exceed these limits.

Another problem which agriculture has with double-stack refrigerated service pertains to the power for the reefer units during transit. Originally, the system was designed to provide power for refrigerated containers on the five-platform double-stack railcar from a centralized source. However, this aggravated the already existing weight problem for the double-stack carrier.

Recently, a self-contained refrigeration unit, equipped with its own generator, was developed and currently is being tested with the hope of solving this problem. These refrigerated containers can be loaded in any position on a stack train and can be readily transferred to a truck or a conventional flatcar as required. These self-contained units have 70-gallon tanks to carry sufficient fuel for the Seattle-to-Chicago run. (Fuel is expended at the rate of 1 gallon per hour, travel time is about 60 hours for this run). Containers are refueled at Chicago and proceed to New York.

Finally, double-stack service is directly dependent on a sufficient volume of cargo moving. The question is whether the volume exists for agricultural products to move domestically on their own double-stack trains. Double-stack service is best suited for handling time-sensitive cargo on very high volume corridors. There are many intermodal flows that cannot support volumes large enough for double-stack unit trains. It has been cited often that a shipping corridor must have at least 50,000 loads per year in the head-haul direction to support a regular or continuous double-stack operation. Three thousand container-equivalent loads of fresh fruit and vegetables moved from California to New York City in 1987.

In summary, inland transportation of international marine containers on double-stack unit trains has been a successful concept and has produced a significant impact on rail freight transportation in the United States. Stack trains are, in many instances, more cost efficient in comparison to conventional TOFC/COFC intermodal trains.

The stack trains advantages are many and include the damage free ride and the excellent condition of commodities transported. Additional advantages include a dedicated unit train operation, articulated flatcars and their cost efficiencies. Finally, the scheduling and speed with which stack train service is operated increases significantly the utilization rate of both equipment and rolling stock.

Although there have been problems in the transport of agriculture perishables on double-stack trains, both carriers and manufacturers have been working to develop equipment which will overcome these problems. As the need and demand for the service increases among agricultural shippers, solutions to these

problems will hopefully be found.

PRELIMINARY ASSESSMENT OF THE SHIPPING ACT OF 1984: A CASE STUDY OF PACIFIC NORTHWEST AGRICULTURE

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The paper will identify some agricultural exporters in the Pacific Northwests perceptions of the Shipping Act of 1984. A review of the specific provisions in the Act, an examination of the perceptions of shippers towards the Act, and identification of some impacts of the Act on agricultural shippers will be discussed.

Shipping Act of 1984 Provisions

1. Conference Structure

   - The Act made little basic change in the conference structure.

   - The Federal Maritime Commission, (FMC) lost the authority to approve or disapprove carrier agreements, which, from the carrier viewpoint, made things happen faster and with more certainty. Agreements still had to be filed with the FMC.

   - The court system became the arena for the evaluation or contesting of agreements.

   - Rate agreements were streamlined to 45 days, which was important in terms of efficiency and market conditions.

   - Conferences were to remain open.

2. Mandatory Right to Independent Action

   - Individual carriers could depart from rates collusively set by conferences. This introduced both rate uncertainty and rate flexibility.

     From a shipper point of view, the Act allowed for better response to market conditions for shipments of perishable agricultural products.

   - Full market information was no longer available to all the participants in the market.

3. Service Contracts

   - Service contracts are quantity and rate agreements. For a given rate, the shipper gets a specific service. Or, the shipper gives a specific quantity and then gets a lower rate.