

THE TRANSPORT OF AGRICULTURAL PRODUCTS:
CASE STUDIES IN NEW SOUTH WALES

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ABSTRACT:

The transport of agricultural products is an area that appears to have received little coverage at previous ATRF's. The intention of this paper is:

to describe the nature of the transport task for several major agricultural commodities - wheat, wool, eggs, milk and livestock; and

to provide an analysis of how regulations that are applied to the agricultural commodities can affect the transport task.

With certain commodities, a significant level of control is vested in Federal or State statutory authorities. These authorities in turn impose or tolerate various constraints on how, where and by whom the commodity is transported. In this way the government is influencing costs, not only in agricultural production, but also in transport.

This raises the policy question of the extent to which governments should then act to ensure maximum economic efficiency in this area of transport.

*This paper is based on research conducted on behalf of the National Road
eight Industry Inquiry.*

INTRODUCTION

The transport of agricultural products forms a major component of the road transport task in Australia. For example, in 1979 goods transported in the agricultural sector totalled 10,554 million tonne-kilometres: 22 per cent of commodity transport by road (according to the Australian Bureau of Statistics).

Despite the importance of the transport of agricultural products, this area has received little coverage at previous Australian Transport Research Forums. The intention of this paper is to provide an introduction to this topic. The approach will be to describe the nature of the transport task for certain of the major agricultural commodities, with particular emphasis on the pressures that they place upon the road transport system.

The agricultural commodities that will be examined in this paper are wheat, eggs, milk, wool and livestock. The transport task differs for each because of the nature of the product, the different destinations and the varying levels of regulation. The format will be to provide a brief description of the transport task for each commodity, followed by an overview of the sector, as they apply in New South Wales.

Particular attention is given with wheat, milk and eggs to the regulations that are applied to the products themselves and the effect that these have on the nature of the transport task.

WHEAT

Wheat is by far the major commodity in terms of quantity moved. In 1983/84, total movements off-farm in New South Wales exceeded eight million tonnes. Wheat is also highly regulated. The entire harvest is purchased by the Australian Wheat Board (AWB). Further, in New South Wales, as in all States, there is a statutory authority with control over storage, the Grain Handling Authority (GHA).

The transport of wheat consists of two stages. The AWB does not purchase the product from the farm, but at GHA silos. Thus, the wheat must be transported from farm to silo (each of which is located at a rail siding). From there the wheat must be moved from the west of the State, where it is grown, to end users. Over 80 per cent is exported, mainly from Sydney and Newcastle, and a significant proportion of the remainder is used by processors also located on the seaboard.

The wheat growing areas are serviced by an extensive rail network, with an average road distance per load of only 15 kilometres. This phase of the transport takes place almost entirely over minor roads, from the farm to the nearest town.

The movement of wheat to storage is highly seasonal. Harvesting takes place in November/December and the product must be moved quickly, otherwise it risks being weather damaged. With the crop in any region usually harvested over a period of only a few weeks, this places extreme pressure on both the road system and the transport operators.

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On average, two-thirds of movements from farm to storage are by farm vehicles. The remainder is divided between town general carriers and bulk carrying companies, with some also carried by farm vehicles that are hired out.

Wheat is a bulk cargo and may be carried in any vehicle suitable for hauling coal, sand or the like. In addition, it is possible to use removable bins on flat-topped vehicles, greatly reducing the cost of specialised transport equipment.

This provides carriers with the ability to operate economically. For the remainder of the year, carriers will either deal with other bulk products, or, if they use a bin, carry livestock and general cargo. The use of bins also means that farmers can carry wheat on general purpose farm trucks.

Hired transport is expensive on a tonne-kilometre basis, as it is short-haul and usually incorporates a waiting time (up to six hours) for unloading. The average cost in 1983/84 was \$8/tonne for an average distance of 15 kilometres.

Nonetheless, farmers generally prefer local operators over "outsiders" who may be price-competitive. There is a recognition that the local carrier also provides other services, such as mail deliveries, that are less remunerative but are important to farm life.

There is a significant difference in the cost structures for commercial vehicles and farm vehicles. Diesel powered farm vehicles receive an excise rebate of 7.155 cents/litre for the quantity of fuel used off-road. This rebate is adjusted to take account of the extent of on-road use, but even so, farmers may receive some benefit from the rebate in carrying operations. In addition, farmers receive exemption from the 3.5 cents/litre NSW Franchise Tax, concessions on vehicle registration and sales tax exemption for certain types of trucks.

These concessions will have an influence on the decision to use the farm vehicle or an outside carrier, as well as affecting the costing for any farm vehicle being hired out for carrying.

The urgency of the transport task places considerable pressure on the road system, particularly as there has been a tendency for some farmers and carriers to overload vehicles. Regulation of overloading is through a section of the Local Government Act, which provides for limits on both axle weight and overall weight. The stated purpose of the legislation is to prevent damage to roads and bridges, particularly on minor routes.

The regulation effectively means a net load limit of about 25 tonnes on the largest vehicles, about 36 tonnes gross. Vehicles have been found in roadside inspections grossing more than double this weight.

The second stage of transport, to end user, is strongly

influenced by the State Government decision that neither port loader (nor the planned third loader) has road access. This decision has been made on the grounds that road access would involve an unacceptable level of heavy vehicle movement through urban areas. It also means that the State Rail Authority (SRA) is responsible for the vast majority of wheat movements. In 1983/84, rail revenue from wheat movements was approximately \$150 million.

There are some movements by road, for example, from the South of the State to Geelong (250,000 tonnes on average) and extraordinary movements, for example, back to country areas for drought-feeding (in 1982/83, 144,000 tonnes was moved by road for this purpose).

Since the AWB has ownership of the wheat, it controls these movements. Thus, it has an important role in the allocation of contracts to carriers. Although not discussed here, other State statutory authorities are also vested with control of particular grains and so also are major employers of road transport. For example, in 1983/84 the Barley Marketing Board of NSW moved 273,000 tonnes of that commodity by road.

When the AWB undertakes extraordinary movements, the process is by tender. However, the AWB only offers the tender to four or five companies who are known to the AWB for reliability. The AWB may also request the SRA to tender for these special shipments (ie, seek cheaper than normal rates).

For shipments from the south to Geelong, transport is arranged by the AWB Melbourne Office, also on a tender basis. In this case, however, there is an organisation of carriers known as the Riverina Grain Handling Association that co-ordinates contracts. It appears that, provided the AWB is satisfied on cost and reliability, this group has a significant position in controlling this section of the trade.

With the AWB and other Government marketing authorities, it is apparent that the customer has a significant role as price setter. Further, rail prices have a role in controlling overall market prices. Although both price and reliability of service are important, there is little competitive variation between carriers. 'Goodwill', in the form of being known and trusted by the marketing authorities, is a significant factor.

EGGS

As with wheat, the transport of eggs is in two stages: from producer to receiptal centre (where eggs are washed, graded and packed) and thence to the retailer. Again, a statutory authority (the NSW Egg Corporation) has ownership of the product, but receives it at a central point rather than at the farm gate. Some larger producers are authorised to prepare their own eggs and transport directly to retailers, however, the majority of eggs are transported to Sydney, Tamworth or Young.

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Egg production is highly regulated. Each producer must possess a quota for the number of layers held. Quota levels reflect demand, which has been static in recent years, and so the level of production has shown little variation.

Transport from producer to receival centre is unregulated, except for the requirement that the eggs must be refrigerated, even on short hauls. This represents a significant capital investment and degree of specialisation, which however is made more desirable by the constant market. This sector of the trade is divided between farm vehicles and commercial carriers, with the latter in the majority.

The distribution from receival centre to retailers is worth noting as it is one of the few areas in agriculture where the transport system itself is regulated, over and above any regulations applying to the product. The Egg Board (replaced on 1 July 1983 by the NSW Egg Corporation) reached an agreement with the Transport Workers Union that distribution in Sydney/Newcastle/Wollongong would be by contract for specified runs. Each contract was for three years, but an implied contract remains in force.

This contract provides for regular increases in rates, based on an index of cartage costs. Combined with the steady, reliable volume, it means that the runs are valuable assets.

A condition of the contract is that, provided the carrier meets certain conditions (on reliability and condition of vehicle) he cannot lose the run. Further, subject to reasonable conditions, the carrier can nominate a person to whom the contract will be transferred. The result is that these contracts have a capital value.

This arrangement affects about 30 operators and there are, on average, two transfers per year. Distributors outside the metropolitan area do not have contracts. The Corporation negotiates arrangements and provides a letter of appointment, which can be terminated at the Corporation's discretion. Also in these cases a producer seeking to offer direct supply to a retailer will receive preference over a carrier.

Not surprisingly, the Corporation is currently attempting a review of this contract system.

MILK

As with wheat and eggs, the Authority purchases the product (although not the entire raw milk output) and takes control beyond the farm gate.

The NSW Dairy Corporation has first call on the raw milk needed for plain and flavoured milk and sweetened cream. Any excess goes into the manufacture of other cream, cheese, butter or other dairy products (though the bulk of these items are imported from Victoria.)

Producers are on fixed quotas for supply to the Corporation. They are responsible for supplying the milk to one of 43 receival centres where on average 30 per cent is processed for local use and 70 per cent forwarded by road or rail (under the control of the Corporation) for processing at the location of eventual sale, mainly Sydney/Newcastle/Wollongong.

Based on price levels currently charged by the SRA, rail is a cheaper mode of transport but its use is limited to instances where facilities are located at or near delivery and receival points. About half the receival points have rail facilities at the plant or close enough to make rail viable. The two Sydney processing plants have rail facilities and are the destination for all rail movements.

Road transport is a mixture of short and long haul. At one extreme is Hexham to Newcastle (12 kilometres), at the other is Finlay to Sydney (750 kilometres). However, equipment and management operations are similar throughout.

The road transport of milk requires specialised, and expensive, equipment, with new units costing \$150,000 or more. While it may be physically possible for other liquids (for example, wine) to be carried, the requirements of health regulations mean that there is no interchange of vehicle usage.

There is a significant barrier to entry deriving from the fact that the control of the product is vested in the hands of the 2,881 quota-holders and the Corporation.

Collection from the dairies to the receival centre and the designated forwarding are the responsibility of the receival centre. These centres are mostly cooperatives, owned by the dairy farmers that they serve. Depending on the finances and wishes of the cooperative members, the vehicle or vehicles will either be owned by the cooperative and operated by employed drivers, or be owner-drivers on contract.

For road movements from the receival centre to delivery point, prices are determined by the Corporation. The price setting takes account of capital expenditure (providing a reasonable return) and inflationary impacts on running costs.

Rates for transport from the dairies to receival centres are negotiated by the cooperative, if they do not own the vehicle (in which case it would be simply a book-keeping exercise). The rates would be influenced by the rates and return determined by the Corporation.

Overall, the milk sector presents an interesting picture of a transport system that is almost totally controlled as a result of the regulations that apply to the product.

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WOOL

Wool is second after wheat in value of production in NSW, but the quantity transported is much less. Production in 1982/83 was 206,000 tonnes. Transport is seasonal, with 60% of deliveries in the four months from August to November. Generally, over 90% is exported, from Sydney and Newcastle, either as raw wool or in semi-processed form. The processors themselves are concentrated in Sydney, though there are some operations in regional centres.

Just under 80% of wool passes through the auction system, the remainder being sold direct. The auction system is in the hands of the brokers who co-ordinate the storage and compressing facilities (called 'dumps'). The three dumps are located in Sydney, Newcastle and Goulburn.

Transport is direct from farm to one of the three dumps and is organised by the producer. Approximately 30% of wool is moved by rail, the remainder by road. Virtually any general carrier's vehicle is suitable for wool transport.

The SRA is actively seeking an increased market share. To this end, it is charging a flat rate of \$3.93 per bale from anywhere in NSW to the three centres, well below road costs over most of the State (for example, road cartage from Armidale to Sydney costs about \$6.00 per bale).

The result is that the SRA has a large share of shipments from the Far West, where road costs are highest. However, closer in, producers are still significant users of road transport despite the cost disadvantage. The major reason is speed and reliability of service.

The transport of wool exhibits many features similar to the transport of grain from the farm gate: disaggregation, the bias towards local carriers and accent on speed and reliability. However, being long-haul, the transport firms are generally larger, based in regional centres and better-organised. Rail is often competitive and affects price-setting by the road carriers. However, unlike wheat, the long-haul nature of the carriage makes it generally inappropriate for the use of farm vehicles. Also, the major long-haul companies such as TNT or IPEC do have a presence but are not as readily accepted by farmers (in much the same way that wheat producers give preference to local carriers.)

The major difference between wool and the commodities discussed above is that the product itself is not owned by a statutory authority. The implication of this for the transport task is that, while there are anomalies in the transport of the other goods, the system of road transport for wool is perceived by industry participants as being competitive and efficient.

On the other hand, the application of a uniform price for rail transport implies that some cross-subsidisation is occurring.

LIVESTOCK

The movement of livestock is the major component, in terms of tonne-kilometres, of agricultural transport. Livestock transport falls into two broad (and overlapping) subsegments: short-haul, covering movements from the farm to the nearest auction and from auction back to the farm; and long-haul, covering movements to and from agistment and to an auction or abattoir some distance from the point of origin.

Short-haul movement is shared between contractors' and farmers' vehicles. Contractors need to be flexible, as a load might go unsold and have to be returned, planned purchases may not eventuate, or often transport is not sought until after an auction.

The contractors involved are usually based in the local town. Generally, this is the same operator that undertakes grain haulage during harvest and replaces the grain bin with a livestock bin. As with grains, there are also instances of farm vehicles contracting for this trade.

It should be noted that the concessions that apply to farm vehicles engaged in carrying grain (on fuel, registration and sales tax) also affect the livestock trade.

In long-haul movements, there is much less use of farm vehicles. Companies are generally regionally-based, using articulated vehicles dedicated to livestock transport. Reliability and speed of service are critical since animals lose condition (and value) in transit. For this reason there is no transport by rail.

These companies may carry other commodities such as grains, but livestock transport is the year-round basis for viability.

An important feature of the market has been the decline in production, and thus in the transport of stock to auction, in the last decade. Total meat production in New South Wales in 1983 was 529 thousand tonnes, compared with 883 thousand tonnes in 1977. The major decline has been in beef production, which fell from 662 thousand tonnes in 1977 to 320 thousand tonnes in 1983. This has placed pressure on abattoirs - a number have closed and many of the remainder still operate below former throughputs.

While transport to auction and abattoir remains below previous levels, livestock transport overall received a major boost during the 1979/83 drought, as stock were moved to and from agistment. Because of the widespread nature of the drought, movement was long-haul to reach drought free areas of agistment. In particular, significant numbers of stock were moved from southern New South Wales to Queensland and back. These movements were encouraged by a government subsidy of 50% on the cost of transport.

All livestock are affected by animal health regulations. At the extreme, every movement of pigs requires a permit. For other livestock, there are regulations affecting spacing on vehicles and maximum journey

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time. At present, these regulations are less important than the economic justification in avoiding damage to the stock. However, there are moves by animal welfare groups to severely tighten these regulations, which could cause a major change to the cost structure of the industry.

Overall, as with wool, ownership of the commodity is not vested in a statutory authority, and the transport system is again perceived by participants as being competitive and efficient.

OVERVIEW

The transport task for each commodity divides into two segments: from farm to collection point, and from collection point to end user (or export). This arises because the majority of agricultural products are not sold from the farm, but rather at a centralised point such as the grain silo, wool auction, egg receival point, livestock auction or dairy.

The transport from farm gate to collection/sale point can be characterised by the following features:

- The market is highly disaggregated, with a large number of operators and customers spread over a broad area.
- For those commodities not controlled by quota, such as wool, livestock and wheat, transport is seasonal and/or the quantity may vary significantly between years. This places pressure on transport operators, who generally must diversify to remain viable.
- Speed and reliability are major criteria in selecting a transport operator. Customers often prefer the convenience and known reliability of local operators, even when there is a price disadvantage.
- Those commodities that do not need specialised transport equipment face competition from farm vehicles, particularly over short hauls. The farm vehicles have a different cost structure, through a number of financial concessions that are provided to agriculture.
- The size of the transport task and the fact that it occurs to a large degree over minor country roads places stress on the road system. The extent to which the emphasis on speed of service leads to overloading increases this stress.

Transport from collection point onwards is, however, somewhat different in its characteristics:

- In a number of areas, significant control is vested with statutory authorities. Few of the cases where control is concentrated in authorities arise from regulations affecting transport itself, although an exception amongst the commodities discussed here is eggs. Generally, the control comes from regulations vesting ownership of the commodity itself.

- . The trend appears to be for the authorities to allow concentration of the market in the hands of a limited number of operators. This may simply be a matter of business practice, as with the AWB, or it may involve a contractual transfer of control to the operators, as with the Egg Corporation. In all cases some consideration needs to be given to ensuring that the transport system maintains efficiency.
- . With most commodities, rail services actively compete. In the case of grains, this competition is affected by direct Government intervention. In other areas, such as wool (and perhaps milk), price discounting appears to occur.

CONCLUSION

This introductory examination fo the transport of agricultural products highlights a number of areas where further research could be carried out. Amongst these would be:

- . The extent to which the actions of statutory authorities affect the efficiency of transport;
- . The effect of Government subsidies to agricultural vehicles on the viability of commercial operators; and
- . Whether the rural road system can be cost-effectively made more capable of handling the transport task.