



EGGS

National Industry Databases

**A report for the Rural Industries Research
and Development Corporation**

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Foreword

This project represents a continuation of research funding provided by the former Egg Industry Research and Development Council for the development of new and existing databases for the Australian egg industry.

Components of this project already in place which were supported by RIRDC were the chick placements database, communication of the market outlook via industry newsletter and the development of national production forecasting database. New initiatives supported were an annual series of nationwide talks to producers on the economic outlook, development of a home page and development of an annual statistical publication. Databases selected for development and enhancement reflect the desire of industry to either maintain existing statistical series or see new series and methods of communication developed which can enhance production planning and, therefore, contribute to improved industry profitability.

This report outlines progress against agreed objectives, pinpoints where changed industry priorities have occurred and why, and how they may set the scene for the development of further industry databases.

This project was funded from industry revenue which is matched by funds provided by the Federal Government and is an addition to RIRDC's diverse range of over 450 research publications. It forms part of our Egg R&D program, which aims to support improved efficiency, sustainability, product quality, education and technology transfer in the Australian egg industry.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/reports/Index.htm
- purchases at www.rirdc.gov.au/eshop

Peter Core

Managing Director

Rural Industries Research and Development Corporation

Glossary

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
AEIA	Australian Egg Industry Association
AFFA	Agriculture Fisheries and Forestry Australia
EU	European Union
GVP	Gross value of production
IEC	International Egg Commission
RIRDC	Rural Industries Research and Development Corporation

Contents

Foreword	iii
Glossary	iv
Contents	v
Executive Summary	vi
1. Introduction	1
2. Objectives	2
3. Methodology	3
3.1 Chick Placements	3
3.2 Economic Outlook Talks	6
3.3 Production Forecasts	6
3.4 Annual Statistical Publication	7
3.5 Web Site	8
4. Detailed Results	9
4.1 Chick Placements	9
4.2 Production Forecasts	13
4.3 Economic Outlook Talks	15
4.4 Annual Statistical Publication	15
5. Discussion of Results	19
5.1 Chick Placements	19
5.2 Production Forecasts	20
5.3 Economic Outlook Talks	20
5.4 Annual Statistical Publication	21
6. Implications	25
6.1 Chick Placements	25
6.2 Production Forecasts	25
6.3 Economic Outlook Talks	26
6.4 Web Site	26
7. Recommendations	27
8. Appendices	28
8.1 Marek's Disease Mortality Survey Form	28
8.2 Proposed Website Design	30
8.3 Relationship between Flock Size and Egg Stocks	31
8.4 Trade in Dried Egg Products	32
8.5 Weekly Production Forecast Survey Results	33
8.6 Overview of Moulting Practice in the Australian Egg Industry, 1995-98	38
8.7 Marek's Disease Mortality Rates	39
8.8 Comparative Rates of Lay in the Australian and US Industries	40
8.9 Calculation of Maximum Flock Size Excluded from Australian Bureau of Statistics Surveys	41
8.10 Examples of Coverage of the Market Outlook in "The Eggsaminer" and "Focus on Research"	42

Executive Summary

The Australian egg industry continues to suffer from a dearth of accurate, relevant statistical information dealing with shell eggs and egg products. The provision of support by RIRDC, combined with some improvements in the quality of industry statistics by the Australian Bureau of Statistics, (ABS), means the industry has access to better information.

However, on the basis of resources allocated to the collection of industry statistics, and the quality of the statistics, Australia remains well behind comparable countries, including the US, the UK and Canada.

There is anecdotal evidence to suggest the industry is placing greater reliance on available information on the state of the market. Possibly the best measure of this is the level of interest in talks given to industry meetings during the course of this project. Another sign of interest is the way the industry has responded to advice provided. There are signs the egg market is less volatile, at least in terms of surpluses and shortages. While there remains no accurate figure on farm gate prices, or even a reliable indicator of this measure, (itself a lingering deficiency in the national database system), it is likely that farm gate prices are less volatile than was the case in the early years of egg marketing deregulation.

There has been further deregulation of egg marketing with total deregulation now achieved in Queensland. Regulatory developments and market forces are driving a stronger deregulation culture in the egg market in States where statutory marketing authorities remain, (Western Australia and Tasmania). These markets are now more exposed to external forces and, particularly in the case of Western Australia, appear to be more prepared to exploit opportunities outside their traditional market. These developments all add to the industry's risk, uncertainty, and market and profit potential.

As this market environment continues to evolve, an increased reliance on accurate, reliable statistics, more regular, informed and comprehensive analysis and an increasing appreciation of its importance and relevance to the industry is expected.

This report shows that information available in Australia is variable and inconsistent. However, there are good prospects that improvements in consistency, reliability and quality of industry databases will occur over time.

Not all objectives of this project were achieved. The production-forecast database was terminated due to the inability of the industry to provide meaningful, accurate information on all indicators sought. However, it provided a useful snapshot on the supply side of the industry as well as its economic efficiency. These are significant outcomes. There appears to be a substantial variation between official statistics on Australian egg production and consumption and the levels for these indicators that are suggested by the results of this survey.

In conclusion, there appear to be very strong grounds for maintaining and enhancing the existing industry databases. There appears to be much less volatility in the egg market in terms of farm gate returns and industry profitability than was the case earlier in the era of deregulation. This indicates producers and marketers in the industry use information and advice provided in setting production, marketing, pricing and other strategies to their benefit.

1. Introduction

Prior to deregulation of statutory egg marketing arrangements in New South Wales in 1989, egg-marketing authorities collected and maintained accurate, comprehensive statistics on the Australian egg industry. These statistical collections had an important commercial function and enabled the industry and regulatory bodies to plan the production, marketing, selling and pricing of shell eggs and egg products. The regulated industry relied on demand supply management as the basis for effective statutory marketing. This recognised the importance of achieving market equilibrium between supply and demand and ensuring that it was backed by appropriate production planning.

Soon after deregulation in New South Wales, the industry realised the importance of collecting and maintaining reliable information on the egg market. At the national level, the industry appreciated the problems arising from a sudden loss of detailed information on the New South Wales egg market and the implications this may have for the rest of the industry.

The principal, internationally recognised indicator of industry activity is chick placements. This is because chick placements provide an underlying indication of trends in egg supply and, therefore, a useful guide to future market conditions. The first national database developed by industry after deregulation related to chick placements. This occurred in July 1990. This database remains a critical source of industry advice.

In subsequent years, the highest priority was given to improving the quality and presentation of information and advice arising from this database and in devising measures designed to predict the possibility of a shortage or surplus in the market.

The first surplus in egg production occurred in 1990, with subsequent surpluses experienced in 1993 and 1998. Shortages followed in 1992 and 1995. The 1995 shortage was exacerbated by a sharp increase in mortality, primarily due to the emergence of a very virulent strain of Marek's disease virus. The full implications of this were not apparent for some time. Once they became apparent, they highlighted the need to rely on indicators other than chick placements for an assessment of the market outlook.

The shortages and surpluses experienced during the last ten years, when backed up by the absence of any statutory powers in regard to pricing and acquisition of eggs for manufacturing and exports, demonstrated the need for producers and marketers to have information for better production planning and improved profitability.

Further databases have been developed covering egg stocks, since disbanded, and production forecasts, also disbanded. In response to industry requests, funds have been provided in this project for the development of statistical series covering a range of other indicators of production, consumption, prices, income, trade and other measures in Australia and overseas.

Because there is increased reliance by the industry on accurate, timely and comprehensive data on industry activity, the author believes there is a strong case for increased resource allocation to the development of new databases, the enhancement of existing databases and the provision of more regular, comprehensive, authoritative and accurate advice on the outlook for the industry.

2. Objectives

- To collate and disseminate information of national importance to the Australian egg industry;
- To analyse information in order to assess the economic outlook for the industry;
- To enable the industry to improve production planning;
- To meet with producers each year and provide an economic outlook for the coming twelve months;
- To develop an annual industry statistical publication.

3. Methodology

General Comments

A simple methodological approach was adopted, that is to collect and aggregate data, disseminate information to the industry and provide a simple descriptive analysis and interpretation of available information.

3.1 Chick Placements

Overview

The underlying approach was to allow for maximum flexibility in deciding how best to disseminate information to industry. The approach taken is designed to respond to industry needs in terms of presentation of information and commentary on results. At all times, the objective was to provide information promptly and in a readily understandable manner. This was designed to enable industry participants the opportunity to relate the national industry outlook in terms of flock supply and broader market conditions to their particular business. No attempt has been made to use econometric or other statistical tools to analyse results.

Legal Basis

Under legislation relating to the collection of levies to fund industry programs, layer hen hatcheries are required to supply details of chick placements to the Department of Agriculture, Fisheries and Forestry Australia (AFFA). Specifically, information is provided on chick placements for a particular month two months hence. For example, by the end of October, levies payable to the Commonwealth relate to August chick placements.

Making Use of Information Provided to the Commonwealth under Legislation

Hatcheries that collectively provide the bulk of day old chickens to the industry have been identified using industry intelligence. The understanding reached between the Australian Egg Industry Association (AEIA) and AFFA is that details of placements are provided once all hatcheries thought to have at least two per cent of the national market have submitted returns. Hatcheries cooperate by submitting returns that indicate actual or forecast placements by State, Territory, or as exports.

Once AFFA officials are satisfied that all major hatcheries have submitted returns, placements are aggregated by destination, (State, Territory or exports), and by month. This information is then provided to AEIA. This means the rights of hatcheries under privacy legislation are protected, while information on the day old chicken market that is considered to be reasonably accurate and relevant to industry needs, can be provided.

Checking for Accuracy

Checking for accuracy can be problematic for several reasons. Firstly, there is extreme volatility in the day old chick market, especially in deregulated States. Variations in placements from one month to another in succeeding years have been as high as 80% at the national level and even higher at the State level, especially in New South Wales, Victoria, Queensland and South Australia. Secondly, because of privacy legislation, AEIA relies totally on AFFA staff for the compilation of figures from those returns. Thirdly, there may be weaknesses in the administration of levy collection arrangements, leading to either evasion or avoidance of levy collection payments.

Two of these factors can be tackled. The problem related to volatile markets only arises because of privacy constraints on the ability of anybody other than AFFA staff to scrutinise the figures. In

order to address this problem and improve confidence in the accuracy of the placement figures, placements for a particular month are forecast and then are subject to revision on four occasions. Revisions are compared to figures previously provided for a particular month on a national as well as a State/Territory/ exports basis. With each succeeding revision, a logical pattern to variations in placements is sought.

Table 1 Summary of Revisions of Chick Placements Statistics ('000 Chickens)

Month	Final Revision	Third Revision	Second Revision	First Revision
Jul-98	0	1	108	208
Aug-98	1	-104	-83	-30
Sep-98	0	2	1	30
Oct-98	0	50	44	-21
Nov-98	1	30	68	-31
Dec-98	0	3	-112	55
Jan-99	2	70	-114	36
Feb-99	0	27	-42	-16
Mar-99	0	-19	-73	-93
Apr-99	2	0	9	-15
May-99	0	-21	55	114
Jun-99	0	33	-8	7
<i>Aggregate</i>	<i>6</i>	<i>72</i>	<i>-147</i>	<i>244</i>
Monthly Average	0.5	30	59.75	54.67

Table 1 shows how the level of accuracy tends to increase with time. It is clear that a variation of 15 to 20 percentage points in the national level of placements between one revision and another is not unexpected between the first forecast and the first revision. A variation of similar magnitude may also occur between the first and second revisions, although less volatility normally takes place.

Experience shows that the second revision is an accurate pointer to the final agreed placements. This is clear from Table 1. Therefore there is generally little variation in placement figures between the second and third revisions and often no variation at all between the third revision and the fourth, or final revision.

While significant variations in forecasts in States where statutory marketing of eggs no longer exists are expected, such variations are not necessarily expected in Western Australia. Therefore, if even a relatively insignificant variation in a Western Australian placements forecast was provided, AFFA officials would probably be asked to check the accuracy of that particular figure.

The likelihood of problems arising due to evasion or other administrative reasons and, therefore, loss of reliability of these statistics is thought to be low. The egg industry is closely knit, and to an increasing extent, vertically integrated. Therefore, it can be expected that administrative weaknesses will be readily identifiable and dealt with promptly. Further, the reported level of

chickens placed, when transposed to flock size and placement programs, is in line with industry estimates.

Dealing with Very Virulent Marek's Disease Virus

Although not anticipated in the original proposal and not specifically funded, it became clear it was necessary to obtain a better understanding on the impact of very virulent Marek's disease virus on the egg market. Difficulties arose in attempting to interpret the market outlook due to an over-reliance on chick placements.

During 1996 and 1997, chick placements statistics suggested a significant surplus in the market was inevitable and would grow to become a very serious problem. However, the market remained tight. A difficulty in understanding what was happening arose because the industry did not have a clear idea of the extent to which very virulent Marek's disease virus was affecting mortality rates and egg production.

In November 1997, AEIA resolved that a survey should be undertaken of all producers to assess the extent to which losses could be attributed to Marek's disease. The survey was undertaken in late 1997/early 1998. Producers were asked to indicate their flock size within specified ranges and mortality rates within specified levels for the three calendar years, 1995 to 1997 inclusive. Separate forms were provided for completion for birds up to 20 weeks of age, and from 20 to 80 weeks.

Results enabled AEIA to re-evaluate flock size in the 22-78 and the 22-91 week series. Adjustments were made based on survey results. A copy of the survey proforma is shown as Appendix 8.1. The impact of Marek's disease mortality was first included in the February 1998 monthly update.

Following the introduction of the Rispen's Marek's disease vaccine in November 1997, AEIA monitored its impact on mortality. Advice was sought from Dr Clive Jackson, consultant to the supplier of the vaccine, Bioproperties Australia Pty Ltd on progress in assessing vaccine efficacy, having regard to the critical flock age range when birds are considered to be more susceptible to this virus. By August 1998, it became clear that the vaccine was quite efficacious. AEIA then developed a target for reductions in chick placements to provide advice on how the industry should adjust its placement orders to take account of the availability of this vaccine and its efficacy.

This was initially shown by comparing the latest month's placement level with the corresponding month in the previous year in June 1998. After the provision of advice from Dr Jackson in August 1998, a target of a 15% reduction in chick placements was set. It was amended to compare the placements pattern with the target. This meant a further adjustment in the presentation of information on the impact of the Rispen's vaccine was introduced from August 1998.

A target was set for each successive month from December 1997 onwards. This was because the Rispen's vaccine became available from late in November 1997 and was adopted rapidly by the industry. An additional three percentage points was added to the cumulative adjustment for the five month flock until April 1998, when, desirably, this 15 per cent target should have been achieved. This was designed to show that to achieve a balanced replacement program for, say, the five months ending April 1998, flock size should have been 15% below the corresponding five months to April 1997.

As stated earlier, AEIA also established, but did not publish, a table showing how actual placements varied from forecasts over the five months of revisions. The pattern of change from forecasts to actual placements for the previous twelve months was calculated and a simple average adjustment one, two, three and four months out from the final figure was determined. These figures were cumulated to provide some guide as to where chick placements were likely to end up following the adjustment into actual figures.

From December 1998 onwards, the comparison was made not with the previous five months but by an accumulation of the chick placements in the last corresponding month prior to the introduction of the Rispen's vaccine. For example, comparing chick placements for the five months ending January 1999 with the latest relevant five months when the Rispen's vaccine was not available, involved totalling chick placements for December 1996, January 1997, and September, October and November 1997. This recognised that the vaccine was in use by December 1997 and, therefore, some change in purchasing patterns may have already occurred as a result of this development.

3.2 Economic Outlook Talks

Economic outlook talks were held in all mainland States in both 1997 and 1998. Venues were determined with the objective of ensuring most producers had the opportunity to attend the talk. Other factors which had a bearing on the selection of venues were the level of local interest, the desirability of travelling around Australia and talking on successive week nights to producers in a different locality and whether there was another industry function or issue which was likely to attract a reasonable attendance level.

In regional Queensland, it was decided to address producers in central and northern areas in 1998 only. This recognised two factors; the difficulty producers in those areas had in attending meetings held elsewhere and the relative size of the industry in those areas.

3.3 Production Forecasts

Overview

Production forecasts data were collected from major egg marketing organisations over a period of 209 weeks between the week commencing 24 December 1994 and the week commencing 26 December 1998. Information was collected for a period of 26 weeks on a quarterly basis and comprised weekly forecasts of flock size, egg production, flock age, commencement of moulting and layers to be slaughtered. Purchases of day old chicks were sought from the survey covering the 26 weeks ending 29 March 1997. This means that with the exception of the first and last blocks of thirteen weeks, revised forecasts were sought.

Participants in this survey included egg producer cooperatives, egg marketing authorities, a distributor and family owned and run businesses. The organisations concerned collated information from as low as four to as many as 220 farms. Total coverage extended to approximately 800 farms located in the six States and the ACT, or an estimated 85% of farms in Australia. Coverage on a flock size basis is estimated at 87% for the latest survey completed during the life of this project (covering the 26 weeks ending 1 January 1999).

Industry sources were used, including hatchery representatives, association leaders and cooperating marketing organisations, in order to obtain an idea of trends in the industry amongst those organisations that did not participate in this survey. This enabled national estimates of commercial egg production, flock size and survey coverage to be made. These estimates are considered to be reasonably accurate.

Aggregating and Averaging Information Collected

Once all participants supplied data sought, information for all indicators, except flock age, were aggregated. Average flock age was calculated using a weighted, average approach. A mid-point for forecast production over the 26 weeks of the survey period was calculated for each marketing organisation that participated in the survey. The mid point used was half way between the highest and the lowest forecast production levels for each participant in any of the 26 weeks covered by the survey.

This process was repeated for all survey participants that provided average flock age figures for each of the 26 weeks of the survey.

Average weekly flock age for all survey participants for each of the 26 weeks of the survey was then calculated. Each respondent's average flock age was used to calculate their market share as a percentage of the total market of all survey respondents. The derived percentage figure was multiplied by the stated average flock age for each of the 26 weeks of the survey. This process was repeated for each respondent where that respondent provided average flock age for that particular week.

Where a respondent did not supply information on flock age, an indication of the production practice amongst producers was sought in order to calculate an estimate of average flock age. While this estimate can be calculated with some confidence where induced moulting is not practised, estimates will be less robust if some degree of moulting occurs. An aggregate flock age for a particular week was then determined.

Termination

A decision was taken by the AEIA membership in December 1998 not to continue this survey. There were two reasons for this. Firstly, there was no increase in the extent of coverage of the survey and there appeared little prospect that more representative data would be collected, especially for replacement programs. Secondly, collation of data collected was time consuming and became more difficult to justify when compared to other priorities.

3.4 Annual Statistical Publication

Overview and Selection Process – Seeking Information

Statistics on the industry were obtained from a wide variety of publications. These were mainly issued by ABS. However, they also include information available from AFFA, the Australian Bureau of Agricultural and Resource Economics (ABARE), the Food and Agriculture Organisation, United States Department of Agriculture and the International Egg Commission (IEC).

The following indicators are included in this publication:

- Population - current and future by State/Territory
- Gross Value of Production - by State/Territory
- Number of producers - by State/Territory and national
- Flock size - by State/Territory and national
- Chick Placements – monthly; 22 weeks; 22-78 weeks; 78-91 weeks; by State/Territory and national
- Imports – in annual tonnes, shell egg equivalent terms and prices dried and total
- Exports – in annual tonnes, shell egg equivalent terms and prices
- Retail prices - by capital city - quarterly
- Feed ingredient prices - wheat, oats, barley sorghum - Sydney quarterly - lupins - Perth quarterly
- Per capita egg consumption – national – annual ABS and AEIA estimates
- World egg production trends

- Country comparisons – production, growth rate, farm price and retail price – Australia, Canada, China, Denmark, India, Italy, The Netherlands, UK, US

Information selected for inclusion was based on the consideration of its relevance to the industry, completeness and accuracy. In most instances, information in the publication has simply been transposed from the nominated source.

Per Capita Egg Consumption

The ABS has been collecting per capita egg consumption figures for many years. However, AEIA has had serious doubts about the accuracy of information supplied, although the method of collection used is basically sound. The method involves the derivation of per capita consumption by adding commercial production, backyard production and imports, subtracting exports and allowing for an adjustment factor related to stocks held, and dividing this derived demand by estimated population.

AEIA had the following concerns relating to the ABS statistical series: -

- Commercial production – statistics to 1987-88 are likely to be reasonably accurate. However, they exclude commercial egg production in northern Queensland, Northern Territory and the Australian Capital Territory for the years 1982-83 and 1987-88 inclusive. An estimate of egg production for those areas for those years was derived by AEIA. Commercial production figures for the three years ending 1991 are based on AEIA estimates, having regard to the existence of accurate figures for all states and territories except New South Wales, northern Queensland, Northern Territory and the Australian Capital Territory. Commercial production in subsequent years is estimated on the basis of chick placements and the AEIA production forecast survey;
- Backyard production – backyard production is based on surveys conducted by ABS and its predecessor in 1944 and 1992. Assumptions about the rate of change in backyard egg production are made by AEIA. They are based on understanding within the industry, about the timing of the shift from the backyard, to the commercial sector as a source of eggs for the consumer. AEIA's assessment is that ABS grossly exaggerated the size of the backyard egg industry, especially during the 1970's and 1980's;
- Foreign trade – ABS notes nil or negligible levels of imports before 1987-88. This is a reasonable assumption. Despite this, foreign trade figures are considered to be reasonably accurate;
- Per capita consumption – this is derived for each year in the survey and is based on actual or estimated population by ABS as at 30 June in each year.

3.5 Web Site

The basic outline of the web site has been developed and contents selected for its inclusion. This is based on an assessment by AEIA as to what information is likely to be of interest to individuals and organisations that seek information on the industry. Interviews with web site design companies took place in June 1999 and it is expected that the web site will be ready for access soon thereafter. It is proposed to include all statistics that are available in the Annual Statistical Publication. It is also proposed to seek additional funding for the development of the web site in 1999-2000 from RIRDC. The proposed outline is shown in Appendix 8.2.

4. Detailed Results

4.1 Chick Placements

Chick Placements and Business Cycles

There is an understanding within the egg industry that placements are a very reliable indicator of the outlook for the egg market. This claim is based on the following: -

- Chick placements are a useful indicator of egg supply
- Perishability
- Inelastic demand
- Production characteristics, including rate of mortality and rate of lay, are relatively constant
- Standard replacement program techniques are often employed across the industry, ie. there is often a consistent national flock age which underpins consistency in the rate of lay and this is exhibited by standardised flock replacement programs which apply to a particular flock owner.

This leads to the conclusion that chick placements are a leading indicator of general economic conditions in the industry. These conditions tend to lead to a business cycle characterised by higher than normal order levels for day old chicks as a response to tightness in supply to the market and relatively high farm gate prices. These conditions lead to an underlying increase in production which in turn creates conditions for over-supply in the market, lower farm gate prices and lower than normal order levels for day old chicks. The business cycle is then complete. It then starts all over again.

Chick Placement Results

Chick hatchings in 1996-97 and 1997-98 have been the highest since records were first kept in July 1990. Chick placements in 1996-97 were almost 10.71 million, or over 6% higher than the previous 1992-93 record of 10.087 million. In 1997-98, placements totalled 10.488 million, almost 4% higher than 1992-93. Forecast placements for 1998-99 are 9.954 million, almost as high as the 1992-93 level. Placements for the latest nine years are shown in Table 2.

Table 2 Chick Placements Nine Years Ending June 1999

Year	Number of Chicks Placed
1990-91	9751897
1991-92	8692613
1992-93	10087420
1993-94	9895442
1994-95	8309337
1995-96	9662493
1996-97	10706889
1997-98	10488263
1998-99	9953756

Chick placements include exports, but only about 10,000 chickens have been exported in the last three years.

Impact of Marek's Disease

It is difficult to know when very virulent Marek's disease virus first emerged as a significant problem during the rearing and laying phases. However, it is clear that high mortalities were experienced during 1995. Its impact continued until at least the middle of 1999.

Producers were asked to complete two forms on the impact of this virus, one covering birds to 20 weeks and the other covering birds aged between 20 and 80 weeks. Producers were asked to provide the following advice: -

- The nominated flock size category
- The mortality rate for the calendar years 1995, 1996 and 1997 within a range of specified mortality rates.

Mortality rates were cumulative and related to losses considered to be attributable to Marek's disease only.

On receipt of forms, flock size and mortality rates were aggregated. In order to determine flock size, it was assumed that the mid-point in the flock size range would apply unless the producer happened to have indicated his/her flock size. For example, it was assumed that a flock size of 17,500 birds applied to all forms received which stipulated a flock size of between 10,000 and 25,000 birds. A similar approach was taken in relation to losses. For example, if a producer indicated losses were in the range of 11-15%, losses due to Marek's disease were 13% of the flock, unless specified. This means that a producer who indicated a flock size range of 10,000-25,000 birds and a mortality rate of 11-15% would have lost 2,275 birds, (ie. 13% of 17,500), in the nominated calendar year. In order to calculate losses in flock size amongst rearing birds, the same approach was used.

Table 3 shows that approximately 130 producers completed returns in which they estimated the impact of Marek's disease on flock mortality for birds in the two different age groups, up to 20 weeks and from 20-80 weeks, for the three calendar years 1995-1997. These results are estimated to cover between 30% and 40% of the national flock.

Table 3 Marek's Disease Survey Summary of Respondents

Flock Size (Birds)	Number of Respondents (By Flock Age)	
	Under 20 Weeks	20-80 weeks
Under 2000	24	25
2001 to 5000	13	16
5001 to 10000	14	16
10001 to 25000	26	34
25001 to 50000	11	18
50001 to 100000	8	9
100001 to 200000	6	5
Over 200000	2	1
Not Stated	6	6
TOTAL	110	130

Table 4 Marek's Disease Survey Summary of Results

Year	Number of Valid Responses	Aggregate Flock Size (million birds)	Aggregate Losses (million birds)	Mortality Rate %
Under 20 weeks				
1995	94	3.495	0.317	9.06
1996	97	3.507	0.297	8.46
1997	101	3.568	0.198	5.54
20 to 80 weeks				
1995	111	3.110	0.392	12.60
1996	116	3.096	0.390	12.59
1997	117	3.074	0.352	11.45

Table 4 shows that losses were very high in 1995, and gradually fell in 1996 and 1997. Amongst birds to 20 weeks, losses were highest in 1995, fell slightly in 1996 and fell significantly in 1997. Amongst layers, losses were higher than in younger stock in all years. Again, they were highest in 1995. There was only a marginal fall in 1996 and a slight fall in 1997.

Chick Placements Lose Their Relevance as an Economic Indicator

During the period of this project, it became clear that chick placements could no longer be considered as useful an indicator of egg production and, therefore, market conditions, as previously thought. The major reason for this was the impact of very virulent Marek's disease virus. By mid-1997, chick placements, when aggregated to flock size, implied that egg production could be over 20% above the needs of the market. Over-reliance on chick placements during 1996 and 1997 as a basis for advice on market conditions meant the industry was being consistently told to expect a surplus and, therefore, a sharp fall in farmgate prices. However, there appeared to be ongoing tightness in the market.

Egg stocks statistics collected independently by Rowly Horn place further doubt on the extent to which the Australian industry should at least rely on chick placements as the principal indicator of significance to egg supply and farmgate prices.

On the demand side, there are a series of markets for eggs that work in different ways. Reasons for the manner in which markets work vary from one market to the other but include:-

- The market power of buyers and sellers
- The number of buyers and sellers
- Whether supply contracts for eggs are absent or present the duration of these contracts and their terms - price, quantity and other factors.

This means differing market characteristics apply to retail components of the market in terms of: -

- Supermarket trade versus the box retail versus the on-farm trade
- Specialty, (free range, barn laid, vegetarian, organic, Omega 3), versus generic
- Large food service buyers, (eg. McDonald's, airlines, defence forces), versus smaller buyers, (bakeries, small motels, hospitals, etc).

There is also a separate market component based on the shell market, which is influenced by domestic considerations only, as opposed to the dried egg market, which is exposed to international competition. The liquid, frozen and other specialty egg product markets appear to sit somewhere between these two extremes in that they seem to face a greater level of domestic competition in a geographic sense.

Finding Indicators to Measure Market Conditions

Generally, indicators of supply, demand, stocks held, production and prices received are used as indicators of the market.

In the Australian egg industry, the only indicator that has been maintained on a consistent basis that gives an idea of the state of the egg market is egg stocks held. As indicated earlier, this database is maintained by Rowly Horn is updated on a weekly basis. This database covers approximately 75 to 80% of the Australian egg industry and has been maintained continuously since January 1994 in its current format.

As indicated earlier, it is widely accepted within the egg industry both in Australia and elsewhere that chick placements are a very good indicator of the health of the egg market. Therefore, it seems logical to compare flock size to egg stocks.

Appendix 8.3 shows how flock size and egg stocks have varied on a monthly basis over the period since January 1994. It is clear that up until 1995 there was a close relationship between chick placements and egg stocks, having regard to seasonal conditions. Generally, when flock size was high, egg stocks were also high, and vice versa. However, from mid-1995 as flock size continued to fall dramatically, the fall in egg stocks was less noticeable. Likewise, when flock size grew strongly through 1997-98, although there was a pick up in egg stocks, it did not follow the same pattern as was apparent in 1994.

In late 1998, based on chick placements, it appeared a significant surplus was highly likely and would persist well into 1999. A repetition of the industry's experience in 1994 appeared likely. This trend was backed up by rapidly rising egg stocks in mid to late 1998. However, stocks fell sharply in the latter part of 1998 and the market has been relatively well balanced in the first five months of 1999. If egg stocks were not available for comparative purposes, the advice provided would have suggested continued growth in egg supply with disastrous consequences. Because egg stocks fell during late 1998-early 1999, other factors were influencing the market.

Slaughtering and Moulting

There are other strategies producers can employ to try and stabilise volatility in the market. These measures include varying flock size and egg supply through moulting and either early or late slaughtering. Imports may to a greater or lesser extent become the source for customers of dried egg products.

One likely cause of the sharp fall in the level of stocks held by marketers in 1998 was that producers slaughtered birds in much greater numbers. In late 1998 the virulent Newcastle disease virus outbreak in western Sydney directly led to the slaughter of about 160,000 pullets and layers or about 1.25% of the national flock. This probably had a minor impact on stock levels.

Foreign Trade

Imports of dried egg products rose strongly during 1995. There are likely to be three reasons for this. Firstly, the Australian Quarantine and Inspection Service permitted the importation of dried whole egg and dried egg yolk from March 1995. Previously, imports of these products were prohibited. Secondly, aggressive market positioning probably occurred soon after these barriers were removed. Thirdly, the sharp fall in domestic egg production at that time would have led to a significant increase in the price of eggs for processing, thus casting doubt on the competitiveness of Australian egg products manufacturers due to higher raw materials costs.

As Appendix 8.4 shows, imports of dried egg products rose sharply and have accounted for almost 3% of the national egg supply. The volume of dried egg imported has fallen slightly since that time and, with the exception of the second half of 1998, the volume of dried egg imports has been relatively constant.

During the second half of 1998, the volume of eggs and egg production in Australia, as measured by chick placements and egg stocks, suggests manufacturing eggs would have been available at a relatively cheap price, thus making it more economically viable to manufacture locally. The fall in egg stocks levels around the end of 1998 seems to coincide with the sharp upturn in the level of dried egg products imports in the first few months of 1999. If dried egg products manufacturers were able to source eggs for processing late in 1998, this would have also contributed to market stability as measured by the fall in egg stocks.

4.2 Production Forecasts

Period and Indicators Covered

Weekly production forecasts were obtained for 209 weeks over the period 24 December 1994 to 1 January 1999. These are summarised in Appendix 8.5. Forecasts were obtained on a weekly basis in relation to egg production, flock size, average flock age and replacement programs, (chicks hatched, birds slaughtered and birds moulted). During the course of the development of this database, an additional indicator relating to birds housed was added.

This means that during the life of this current project, this database was well established. Information on the various indicators was generally obtained from between an estimated 80% and 90% of the industry on the basis of egg production, flock size and flock age. In relation to birds hatched, housed, slaughtered and moulted, the extent of coverage was generally less at around 60% of the national industry, (70% for hatching and housing).

Production

Egg production over the 209 weeks covered by the survey averaged 4,113,391 dozen eggs. This suggests average annual egg production for the commercial sector in Australia approximates 214.5 million dozen per annum. This compares with ABS estimates of egg production which are around the 170 million dozen per annum and highlights what are almost certainly major deficiencies in the ABS collection process.

Flock Size

Flock size tended to relate closely to egg production, although this was not always so early in the survey period. Flock size over the total period averaged 10.19 million birds per week. Flock size peaked at 10.58 million birds for the week ending 10 August 1996. Flock size was lowest in the week ending 20 June 1998 at 9.67 million birds.

Flock Age

Flock age generally fell during the period under survey. During the earlier period of the survey, flock age was rounded to the closest whole week. Later, it was rounded to the closest one hundredth of a week. On a weekly basis, flock age varied from a high of 59 weeks, (probably closer to 58.5 weeks), in various occasions late in 1995 and early 1996 to a low of 49.4 weeks for the week ending 4 April 1998.

Flock age generally exceeded 56 weeks during the two years ending December 1996. Flock age tended to fall in the ensuing two years to average only 51.34 weeks throughout the 1998 calendar year amongst producers who supplied marketers that provided information on moulting. (Generally they were based in New South Wales, Victoria and South Australia).

Replacement Program

As Appendix 8.6 shows moulting now appears to be much less widely practised than was the case in 1995. During 1995, an average of over 1% of the total flock was moulted in any week. Since 1996, generally less than half of 1% of the flock went through a moult in any given week.

Qualifications Related to These Results

There are four significant qualifications relating to these figures which cast doubt on the extent to which they represent the industry and their accuracy. Firstly, as stated earlier, not all egg producers or their marketing organisations took part in the survey. Because of the absence of accurate, reliable information on the industry as a whole, it was necessary to gather basic intelligence on flock size from within the membership of AEIA and amongst layer chicken hatcheries on those who did not take part in the survey. Generally, these organisations were smaller independent producers who also market their own eggs.

The second qualification relates to the replacement programs. At the marketing organisational level, replacement program information appears to be better developed amongst marketers based in the deregulated States. Thus, for the purposes of these surveys, information on hatching, housing, slaughtering and moulting intentions has been generally sourced from New South Wales, Victoria and South Australia and was generally not available from the other States.

The third qualification is that these are forecasts and, therefore, do not represent what actually happened in the industry. However, participants in this survey were given two attempts to complete the survey. This is because information was sought quarterly in relation to a six-month period. In aggregate, only minor differences in aggregated production plans emerged between the first and second surveys.

A related fourth qualification is the accuracy of the information provided. Respondents, especially those based in New South Wales, Victoria and South Australia, provided very accurate information, (down to the nearest dozen or bird), for all indicators. In relation to the other States, production information was generally only provided to the nearest thousand dozen with flock size derived therefrom.

One small marketer provided information on flock size at a given point in time from time to time, along with specific details of that organisation's replacement program. In that instance, standard industry measures of egg production, (70 per cent), and mortality rate estimates, (0.7% for the first four weeks and 0.7 per cent per four weekly period thereafter), were used to derive weekly forecasts for egg production and flock size. Another small marketer provided all information requested but on a monthly, as opposed to a weekly basis.

Notwithstanding these reservations, in the author's opinion, these figures almost certainly provide the most accurate estimate of egg production in Australia in the era since deregulation of egg marketing in New South Wales in 1989.

Why This Database Was Terminated

This project was terminated for a number of reasons. Firstly, while information obtained was interesting, little additional information could be obtained to benefit the industry on a day to day basis and, therefore, assist in improving profitability. Secondly, advice was received that the industry did not rely heavily on this survey as a source of information and advice in terms of the development of plans and strategies related to production, marketing and other aspects of industry operations. Thirdly, significant sections of the industry showed no willingness to provide details related to replacement programs.

What was significant about the information has already been stated, ie. it probably provides a much more accurate and representative indicator of Australian egg production, it highlights the weaknesses in official

statistics on the industry and demonstrates that in terms of technical efficiency, the Australian industry is well placed.

It is conceivable that given an increase in physical and financial resources, there may be a case for re-starting this database or, possibly, a modified version based on production, flock size and flock age. However, it also requires commitment from the industry to cooperate fully to ensure statistical series derived from this database are relevant, meaningful and useful.

4.3 Economic Outlook Talks

During 1997, a total of 178 producers and others affiliated with the industry heard an address on the economic outlook. Talks were held in Young, Melbourne, Tanunda, Perth and Toowoomba. Talks were held during September and October. During 1998, a total of 203 producers and others affiliated with the industry heard the address in Maitland, Melbourne, Tanunda, Perth, Cairns, Rockhampton and Toowoomba. Talks were also held during September and October. With the exception of Toowoomba, the number of attendees in all centres was excellent in each year, given the size of the industry. The attendance in Toowoomba was particularly disappointing in 1998, when only two producers were in attendance.

Those in attendance were given a relatively gloomy short-term outlook on each occasion. This recognised the prevailing view that there was a surplus of layers that would underpin a surplus in supply. In 1997, this did not eventuate because the seriousness of the impact of very virulent Marek's disease virus had yet to be fully understood. While conditions in 1998 were more conducive to oversupply and there was a clearer understanding of the impact of very virulent Marek's disease virus on flock size and egg supply by that time, there was a quite remarkable turnaround in market conditions later in 1998 and 1999. As stated earlier, this turnaround contrasted with earlier years and suggests that the industry has learnt to its cost the importance of improving the manner in which it supplies eggs to the market.

4.4 Annual Statistical Publication

Overview

This is the first comprehensive publication of statistics on the Australian egg industry. Statistics contained in the publication cover a range of indicators related to production, consumption, industry location, trade, retail, prices, feed ingredients and international statistics. A separate annual statistical publication has been produced.

Information collected is from up to date sources and is generally based on well-established time series and collection methods.

Projected Population

Tables 1(a), 1(b) and 1(c) of the Annual Statistical Publication show population projections. These projections are an important indicator to producers of where growth in the demand for eggs is likely to occur. There are two reasons for this. Firstly, the industry remains primarily focused on the domestic market and most eggs are still sold in the state of origin. Secondly, capital equipment used by the industry has a long economic life, generally in the order of 20 years. Therefore, there is logic in assessing future market conditions over this period, based on available information. If a greenfields site is to be developed, an even longer time frame may be desirable.

The significance of these trends arises because population is, at least for the foreseeable future, likely to remain a major factor in the location of commercial egg production and downstream processing. Investment in new plant and equipment will be driven to a significant degree by actual and projected population trends. The current population level is important because it provides industry with advice on aggregate capital needs required for servicing a market. Even if there is no significant change in

population in a certain State, regular capital equipment replacement will be required. The other major factor is market growth based on population growth. This means investment opportunities will arise due to changes in the population level in numerical terms and there will be a need to service a growing customer base with a growing stock of capital. This will underpin a higher level of investment when compared to states or regions with no noticeable population growth.

States with high populations, such as New South Wales and Victoria will benefit from a relatively greater level of investment because of their existing market base. States where higher absolute population growth is forecast, such as New South Wales and Queensland will benefit from investment derived from an expansion in the market.

Gross Value of Production

Tables 2(a) and 2(b) of the Annual Statistical Publication show gross value of production, (GVP). GVP rose steadily in the 1980's and, according to ABS, peaked at \$322.5 million in 1990-91. It does not appear possible to determine State by State trends for the years prior to 1988-89 because it appears that ABS did not keep records of GVP in each State prior to that time. There is little doubt that until 1988-89, the steady growth in GVP would have reflected the existing policy environment, that is statutory based demand and supply management with predictability in terms of farm gate income.

Since deregulation of egg marketing, both national and state based GVP have been much more volatile. The broad trend in ABS figures is generally consistent with anecdotal advice related to farm gate returns and industry profitability over the period covered. GVP fell sharply between 1992-93 and 1993-94 at the national level by 19.2%. However, significantly greater falls were recorded in New South Wales (33.6%) and Victoria (36.9%). On the other hand, in 1996-97, GVP in New South Wales grew by 34.5% when compared to 1995-96, while GVP fell by 27.2% in Queensland.

In 1996-97, ABS estimated the GVP at \$274.9 million excluding the Northern Territory, (where the GVP is probably about \$3 million per annum). Based on the results of production forecast surveys, AEIA believes a more realistic estimate of industry GVP in 1997 would have been about \$340 million.

Flock Size and Producer Numbers

Tables 3 and 4 of the Annual Statistical Publication show flock size statistics. Flock size statistics are comparable to those sourced from the AFFA chick placements series and exhibit similar trends in so far as there is a fall in flock size in 1995 and a strong rebound in 1996 and, to a lesser extent, in 1997.

According to ABS, there were 12.78 million pullets in Australia in 1994. Flock size fell by about 12.8% to just under 11.15 million birds in 1995 before rebounding strongly by 20% to just over 13.4 million birds in 1996. There was a fairly modest rise in flock size in 1997 to 13.77 million birds. Producer numbers fell sharply from 566 to 526 between 1994 and 1995 with a further fall to 507 in 1996. Producer numbers according to the ABS stabilised at 506 in 1997.

Chick Placements

Tables 5(a), 5(b), 5(c), 5(d) and 5(e) of the Annual Statistical Publication show chick placements and flock size statistics. These have already been discussed elsewhere in this report.

Imports and Exports

Tables 6,7, 8(a), 8(b) and 8(c) of the Annual Statistical Publication show imports and exports statistics. Accurate, comprehensive statistics on imports and exports have only been obtained by AEIA for recent years. These figures show that there is strong growth in both exports and imports and in both volume and value terms. This is to be expected given some easing in quarantine restrictions and a more outward looking commercially focused Australian industry.

Imports relate to dried egg products only. They show strong growth in both volume and value terms in 1993-94 and 1994-95 and again from 1994-95 to 1995-96, when imports in shell egg equivalent terms totalled almost 5.36 million dozen or almost 3% of the Australian egg market. In value terms, the growth was as spectacular with imports increasing fivefold from 1993-94 to 1995-96 to just under \$3.5 million. Imports in 1996-97 and 1997-98 were between 4.5 and 5 million dozen in shell egg equivalent terms. In value terms, imports were around \$3.5 million in both years.

In relation to exports, there was also strong growth with solid increases in both volume and value terms in the four years to 1996-97. In shell egg equivalent terms, exports peaked at almost 3.45 million dozen in 1996-97. In value terms, exports significantly increased about fourfold over these four years to peak at \$2.03 million in 1996-97. There was a sharp fall in exports in 1997-98 both in volume terms and value terms to about 65% of these figures for the previous year.

In 1997-98, foreign trade deficit in value terms was just over \$2.25 million. In volume terms this represented just over 1% of aggregate demand in Australia.

Retail Prices

Table 9 of the Annual Statistical Publication shows retail price trends. The ABS has been collecting retail prices statistics for many years. This table contains approximately 20 years of retail prices for eggs for all capital cities. Advice from the ABS is that they have adopted a consistent methodology as far as collecting information on egg prices is concerned. This involves: -

- sampling of a given number of stores in the middle of each quarter in the various cities concerned using a high selling egg grade and egg production type
- repeating the sample in each store in successive samplings.

The only significant change in methodology has been to move from deriving prices using an arithmetic mean, (aggregating actual prices obtained and dividing the total by the number of samples obtained), to using a geometric mean, (squaring the aggregate of actual prices obtained by the number of samples, then deriving the square root using the sample size). Other changes relate to egg/carton size.

Results show that egg prices in nominal terms increased by a relatively modest amount during most of the 1970's and 1980's, even though this was a time where inflation was relatively high. Therefore, during this era, the real cost of eggs to consumers fell dramatically.

However, over the last five years, egg prices have generally increased substantially, although the nature and level of the increase has varied from city to city. In the five years to December 1998, egg prices have increased as follows: -

- Sydney by 49.7%
- Melbourne by 55.5%
- Brisbane by 31.5%
- Adelaide by 36.1%
- Perth by 25.5%
- Hobart by 15.1%
- Canberra by 53.2%

- Darwin by 15.9%.

Australian Feed Grain Ingredient Prices

Table 10 of the Annual Statistical Publication shows Australian feed grain ingredient prices. ABARE has monitored feed grain ingredient prices for major ingredients, including feed wheat, feed barley, feed sorghum, feed oats and lupins, for a number of years. Not surprisingly, results show market conditions for most ingredients are quite volatile and generally reflect the movement in supply arising from grain growing conditions locally and internationally. Prices for oats and, especially lupins, have been generally more consistent over the period under survey.

Egg Consumption

Tables 11(a) and 11(b) of the Annual Statistical Publication show per capita egg consumption. Historical figures, for egg consumption obtained from official sources, are shown in Table 11(a). They imply a noticeable decline in per capita consumption from the 1930's to 1940's. The figures suggest a more consistent consumption pattern from the mid 1970's to the early 1980's, followed by a noticeable decline between 1981-82 and 1982-83. The figures suggest that levels of egg consumption then stabilise until 1992-93 and are followed by a further period of decline to 1996-97. Table 11(b) attempts to grapple with these weaknesses. The significance of this table is discussed later in this report.

World Trends

Tables 12, 13 and 14 of the Annual Statistical Publication contain statistics on the global industry. Table 12, which shows production trends in various parts of the world, points out the dramatic shift in egg production towards Asia and away from Europe and, to a lesser extent, the Americas.

US egg production figures are included in Table 13 to give an appreciation of the size of the egg industry in a developed country and to indicate the efficiency of that industry. It is clear that the US egg industry is enjoying a period of strong growth with production in the five years to December 1998 up by almost 10%. Also included is a leading technical indicator of industry efficiency, rate of lay, which has hovered between 71.2% and 73.6% over each quarter for the last five years.

Table 14 compares the Australian egg industry and egg market with the industry in selected countries elsewhere. The countries selected are either major exporters at present or are likely to be in the medium to long term.

Per Capita Egg Consumption

Table 15 of the Annual Statistical Publication shows per capita egg consumption in Australia and 28 other countries. Most countries selected are members of the Organisation for Economic Co-operation and Development. However, statistics are also included for less developed countries in the former eastern bloc, Africa, Asia and Latin America.

5. Discussion of Results

5.1 Chick Placements

The results show that Marek's disease had a significant impact on flock mortality. Appendix 8.7 shows that mortality rates built rapidly from the middle of 1995 to peak at 21.61 per cent in June 1996. Mortality rates to 80 weeks were above 15 per cent from February 1996 till June 1998.

The slow drop in mortality rates occurred for two reasons. Firstly the impact of losses in young stock in 1995 continued while their flock mates were still living and producing eggs into 1996 and 1997. Secondly, mortality was relatively constant in 1995 and 1996, before falling in 1997. However, from May 1998 onwards, a combination of what was probably improved management and the availability of the Rispen's vaccine led to a more rapid decline in losses. Assuming the Rispen's vaccine is fully efficacious, Appendix 8.7 shows that by mid-1999 there would be no losses due to Marek's disease in birds up to 78 weeks.

Table 5(a) in the Annual Statistical Publication shows the pattern of chick placements in the last two years when compared to previous survey years. Chick placements for the latest five months, which peaked in February 1997, remained at relatively buoyant levels during the remainder of 1997 before falling away in 1998 to levels more in line with historical levels. Average annual placements for the three years ending June 1993 were 9.51 million chicks. This period is thought to be reasonably objective because it covers a full business cycle at a time when mortality rates were considered to be normal. Chick placements in the three years ending 1997-98 averaged 10.29 million, or 8.2% on average above the previous three-year period. Average losses up to 20 weeks in the three years of the Marek's disease survey were almost 7.7%, slightly below the 8% average increase in chick placements for the three years ending June 1998.

Table 5(b) in the Annual Statistical Publication gives some indication of the extent to which flock size fell during 1995 and 1996 because of the impact of Marek's disease. Survey results suggest the national flock to 78 weeks was at its lowest point in June 1996 at only 7.954 million birds in the 22-78 week age range. Flock build up was very slow during 1996 and most of 1997. Towards the end of 1997, flock build up was more pronounced. This pattern continued during 1998.

If chick placements are used as a guide, and having regard to the level of flock mortality experienced across the industry, based on the Marek's disease survey results, flock size grew to 10.608 million birds in January 1999, an underlying increase of 33.4 % over this period. Clearly, a variation of such magnitude would not have been achieved, otherwise there would have been chronic shortages of eggs through 1996 and 1997 and large surpluses in the latter half of 1998 and 1999.

However, if the production forecasts database is used as a guide, there is unlikely to have been much change in egg production between 1995 and 1998. These results reinforce concerns about the over-reliance on chick placements as the principal basis for advice about trends in the market outlook for the industry.

This impact continues into 1999 because of the need for producers to make adjustments in their replacement program. This is illustrated in Table 5(b) in the Annual Statistical Publication, which shows how producers have reduced their orders for new chickens, when compared to the comparable months in the three years ending December 1997. However, despite this level of adjustment, this table shows, this was not sufficient to avoid a sharp increase in flock size.

5.2 Production Forecasts

Production

Results also show that egg production was generally lower during 1995 when a combination of high marginal costs and low returns drove many producers out of the industry. Forecast egg production has been more consistent since 1 October 1995, by which time there was anecdotal evidence of a sharp increase in farmgate returns and considerable restoration of confidence on the part of egg producers in the egg market. Since that time, according to production forecast surveys, annual egg production has been at around 216 million dozen.

These figures also highlight the consistent nature of egg production from week to week and year to year. There was only a 17.11% difference in egg production between the week with the highest level of egg production, (week ending 14 February 1998), and the lowest, (week ending 20 May 1995). February is a time of year when it would be expected that production would be relatively low. Production would be expected to be relatively high in May.

Flock Size

There was only 9.43% difference between the highest weekly flock size and the lowest weekly flock size. This reinforces earlier comments that indicators other than flock size which are related to replacement programs can have a bearing on flock size.

Replacement Programs

While there is no clear trend towards less moulting over the last three years, there appears to have been an historical shift from the pattern of moulting which prevailed during 1995. It is unclear whether this represents a permanent shift in industry thinking or not. It will probably require a combination of high marginal costs and low farm gate prices which is reminiscent of 1994-95 at some stage in the future to fully test that theory.

Competitiveness Indicators

Based on information obtained, it was possible to determine the rate of lay and annual egg production and to relate those figures to a given week. As Appendix 8.5 shows, the rate of lay was very low during 1995 but built up gradually during 1996 to a more consistent pattern that prevailed until 1998.

On a year by year basis, the rate of lay improved from 66.22% in 1995 to 71.1% in 1998. As Appendix 8.8 shows, the 1998 figure is comparable to the rate of lay recorded in the US industry by the US Department of Agriculture.

Appendix 8.5 also shows that there is close relationship between rate of lay and average flock age, ie. as flock age falls, rate of lay tends to rise and vice versa. These statistics suggest the Australian industry is technically efficient by world standards, or at least has the potential to achieve that status. This should have implications for policy makers in creating an environment that encourages the industry to develop its strong technical basis.

5.3 Economic Outlook Talks

The generally high attendance level at the economic outlook talks is a clear indication that producers and other participants in the industry want advice on the economic outlook and how it affects the market environment. These talks are supplemented by regular commentary on the market outlook, initially through the AEIA newsletter "The Eggsaminer" and more recently through the RIRDC Egg Program newsletter "Focus on Research".

It is not possible to determine with confidence whether the advice provided has any impact on decisions that are made by producers regarding replacement programs and production. However, it is highly likely that

they do have such an impact. If so, this should mean that the advice provided also has an impact on stabilising flock size, egg supply and, therefore, farm gate prices and profitability. There are shortcomings in the quality of advice provided. This is understandable, given the relatively high level of reliance on chick placements as an indicator of future market conditions. More recently, commentary on egg stocks has become a regular feature of the analysis. There are two advantages that flow from this. Firstly, it means another relevant indicator of market conditions is available. Secondly, its availability means, when interpreted, that it can either reinforce or contradict the 'message' that can be concluded from the chick placement statistics. Either a reinforcing or a contradictory message is beneficial as a basis for advice.

5.4 Annual Statistical Publication

Projected Population

The population tables represent the "best guess" of the ABS of the rate and location of population growth or decline. The following conclusions can be drawn from these tables: -

- The rate of population growth is expected to be well above the national average in Queensland, Western Australia and the Northern Territory, thus acting as a spur to increased industry investment in those areas;
- Population is expected to decline in Tasmania and may decline in South Australia and the Australian Capital Territory in the medium to long term. This is expected to lead to relatively low levels of investment in those areas;
- Population growth is expected to be close to the national average in New South Wales and below the national average in Victoria. These states are expected to continue to attract most new investment. While this suggests the proportion of national investment in the industry is expected to be relatively constant in New South Wales, a smaller proportion of national investment is expected to occur in Victoria;
- In numerical terms, population growth will be greatest in either New South Wales or Queensland followed by either Western Australia or Victoria. The greater the level of population growth, the greater the likelihood that the level of investment, the amount of capital stock, the volume of egg production and other factors will grow at a greater level in absolute terms.

Gross Value of Production

Official statistics suggest that gross value of egg production peaked in 1991, and thereafter has been heavily influenced by industry business cycles. However, as claimed earlier, AEIA suspects that ABS is grossly understating egg production and, therefore, the gross value of egg production. Egg marketing authorities and the associated licensing committees used to be relied on by ABS as sources of advice on egg production. This is still the case in relation to Western Australia and Tasmania. Because of their administrative and regulatory strength, it is likely that statistics provided by these bodies were relatively accurate and continues to be so. Newly introduced statistical collection methods are likely to be much more unreliable.

Official records showing falls in GVP recorded in 1993-94 when compared to 1992-93 are likely to have been overstated when compared to the actual experience of the industry. The same problem appears to have occurred in Queensland in 1996-97 when GVP was said to have fallen by 27.2% when compared to 1995-96. There was no similar trend in the other States at that time.

One limitation relating to ABS statistics for the rural sector is that farms with an estimated value of agricultural output of less than \$22,500 are excluded. In terms of commercial egg production, this probably excludes from this series flocks with a flock size of about 660 birds. (For an explanation of the derivation of this figure, see Appendix 8.9).

Flock Size and Producer Numbers

ABS flock size estimates directly point out the trend in flock size that was evident from chick placements trends. Assuming no abnormal mortality in chicks placed and layers to 78 weeks in March 1994, the actual flock would have been 13.8 million, compared to the ABS estimate of 12.788 million. A flock size of 13.8 million is considered to be a reasonably good guide, given the prevailing extent of moulting practiced in the industry and mortality levels.

While ABS correctly recorded the sharp fall in flock size in the year ending March 1995, the downturn is not nearly as noticeable as suggested by chick placements statistics. Using chick placements as a guide, there was an underlying drop of about 20% in flock size. This is likely to be exaggerated because of evidence from production forecast surveys of relatively high flock age and, therefore, flock size levels.

The ABS records a strong growth of almost 20% in flock size between 1995 and 1996. This is not borne out by the chick placements statistics. Using chick placements as a guide, to 78 weeks, flock size was 13.82 million birds, or about 7% above the corresponding figure in 1995. If the Marek's disease survey reflects actual industry experience, flock size fell to about 11.8 million, or 13% below the corresponding figure in 1995.

However, the industry did record strong growth in flock size through 1997. Irrespective of whether these views do or do not take account of Marek's disease as determined by the AEIA survey, ABS suggests a growth in flock size of about 3%. By way of comparison, chick placements statistics suggest flock growth of 11%, if the virus is not taken into account, or between 7% and 8% if it is taken into account.

Comparisons can also be drawn with the production forecasts survey. In the week ending 1 April 1995, AEIA's estimate of the adult layer flock was 9.997 million. Assuming the size of the pullet flock is 35% of total layer flock, this implies a flock size of around 13.5 million birds, or about 21% above the ABS estimate. Flock size for the week ending 30 March 1996 for layers according to the production-forecast survey was 10.177 million birds. Assuming a 35% replacement ratio again, this implies a flock in the order of 13.74 million, or 2.5% above the ABS figure. Flock size for the week ending 29 March 1997 was estimated at 10.331 million birds, or about 13.972 million for layers and pullets, based on the 35% replacement rate ratio. This figure is slightly over 1% above the figures implied by the ABS survey.

Derived flock sizes using these sources is summarised in Table 5 highlight the discrepancies from one year to another.

Table 5 Comparison of Flock Size (Millions)

Year	ABS	Source		
		DPIE/AFFA to 18 Weeks		AEIA Production Forecasts
		No Mortality	Marek's Mortality	
1994	12.788	15.850	15.850	N/A
1995	11.148	12.950	12.855	13.495
1996	13.413	13.124	11.801	13.739
1997	13.772	15.345	12.686	13.972

Because the ABS annual agricultural census excludes farms which generate less than \$22,500 of revenue per annum, a significant number of small farms are excluded from the survey. As indicated earlier, AEIA believes that farms that have a flock of less than about 660 birds are unlikely to generate more than \$22,500 per annum in gross value of production. However, a smaller flock size will apply to free range producers on the basis that their GVP per dozen eggs is higher, even accounting for the likelihood of a generally lower rate of lay in free range flocks.

AEIA also questions whether ABS surveys all producers with an estimated value of agricultural output of over \$22,500 per annum. Alternatively, their coverage is comprehensive but producers understate their

production. Either of these two alternatives are likely to account for the substantial difference between official ABS figures on egg production as opposed to AEIA derived flock size estimates based on production forecasts.

Chick Placements

These have already been discussed elsewhere in this report.

Imports and Exports

As stated earlier, this peak was probably driven by the relaxation of quarantine restrictions early in 1995. This enabled the importation of dried egg yolk and dried whole egg under certain conditions. Import levels in the following years suggest there may be some settling down in the volume of imports.

Retail Prices

The introduction of deregulation in the egg market appears to affect egg price trends, but different patterns of price movements emerge. In Sydney, egg prices following deregulation in New South Wales fell sharply for the first three years, but since then have generally increased quite substantially. Following deregulation in Victoria, there was a period of about two years when retail egg prices were relatively constant. However, over the last three years, there has been strong growth in retail egg prices in Melbourne.

In Brisbane, retail egg prices have fallen since deregulation of the egg market commenced in late 1996. In Adelaide, egg prices peaked then fell in late 1990 just prior to deregulation in mid-1992 and did not recover to their regulatory era peak, until early to mid-1996. Since the June 1996 quarter, retail prices have been relatively constant at between \$2.34 and \$2.50 per dozen.

In Perth, retail prices have tended to follow the trend in other capital cities. There was a sharp increase in retail prices through 1995 and 1996 and some steadying in price levels in subsequent years. In Hobart and Darwin the pattern of price movement has been similar, with some increase recorded during 1996 and steady prices thereafter. Retail price movements in Canberra tended to reflect trends in Sydney.

Australian Feed Grain Ingredient Prices

The significant trend over the last three years has been for feed grain ingredient prices to generally fall by from \$50 to \$100 per tonne between the March 1996 quarter and the December 1998 quarter. It is not clear what impact these trends have had on prices for prepared feed. However, they suggest a significant downturn in stock feed costs is very likely. Because feed grains account for a significant proportion of the cost of egg production, especially marginal costs, this is expected to have had a beneficial impact on both cash flow and profitability.

Egg Consumption

The footnote to Table 11(a) of the Annual Statistical Publication notes what can only be described as glaring weaknesses in this statistical series. According to official figures, egg consumption was over 4.5 eggs per person per week in the 1930's and 1940's but has since fallen to about 2.5 eggs per person per week in 1996-97. In the early 1980's, according to ABS, egg consumption was over four eggs per person per week.

Table 11(b) of the Annual Statistical Publication attempts to grapple with weaknesses in egg consumption statistics by using a range of sources, which are considered to be more accurate. One interesting finding from this series is that it suggests there has been little change in per capita egg consumption over the last forty years, despite concerns related to cholesterol. However, considerable reservations remain in relation to these figures. These primarily relate to trends in backyard egg production. It is widely accepted within the industry that backyard egg production was at a very high level but has fallen sharply since the 1960's.

What is in doubt is the nature and extent to which backyard egg production fell, or how high it was in the first place. In 1944, the Commonwealth statistical agency estimated backyard egg production at 65 million dozen per annum. It is conceivable that this figure may have grown with the growth in population in the ensuing ten or fifteen years this would mean estimates of backyard production shown Table 11(b) may be grossly understated. However, they have clearly fallen, as shown by ABS in its survey of backyard food production, which relates to 1991-92. What is not clear is when the downturn in backyard production occurred and at what rate.

World Trends

In 1961, Asia, excluding the former Soviet Union republics, accounted for just over a quarter of world egg production. By 1991, that figure increased to almost 42%. If the former Soviet republics based in Asia are added this figure had jumped to almost 55% by 1996. In the same period, egg production in Western Europe, excluding the former Soviet Union republics in Europe, has fallen from over 28% to just over 18% between 1961 and 1991. Assuming the former Soviet Union republics are excluded, European egg production as a proportion of global egg production is probably now about half the 1961 level. There is every reason to believe that these trends will continue in the ensuing years.

Asian countries now dominate world egg production. There is no sign this dominance is going to be curtailed, although there is anecdotal evidence of either deceleration in the rate of growth or a decline in egg production since the economic downturn in a number of Asian countries since 1997. It is difficult to predict future economic and cultural trends. However, in the Indian sub-continent, there appears to be plenty of scope for further rapid and significant growth in the industry. This suggests the dominant position of Asian countries in the egg industry will be maintained, if not enhanced.

It is quite conceivable that imports from Asia will grow at the expense of the EU and North America, providing quality requirements of Australian customers and regulatory agencies are met. This suggests industry policy in Australia should increasingly be driven by developments in Asia as opposed to Europe or North America. Of interest is the clear indication that there is no trend towards an improving rate of lay for the US egg industry over this period. The US rate of lay is probably 1% or 2% better than the Australian equivalent, if Australian egg production forecasts are a reliable guide.

Profiles for those countries with which the Australian industry either presently competes or is likely to compete against in export and import markets highlight the trend towards strong growth in the egg market in developing countries as opposed to developed countries and how farm gate prices vary from one country to another.

Other significant trends that emerge from these statistics are: -

- Farmgate prices in continental Europe tend to be much higher than those which, according to anecdotal evidence, prevail in Australia;
- Farm gate prices in the US and India are noticeably less than in Australia;
- European retail prices are well above Australian retail prices, while North American retail prices are well below Australian retail prices.

Table 15 shows per capita egg consumption for 29 countries, including Australia. The significance of this table is that it shows that in terms of most developed countries, Australia's per capita egg consumption is relatively low. Even assuming that industry statistics are more representative of egg consumption in Australia than ABS statistics. Statistics highlight the potential market growth that industry could enjoy given a commitment from the industry to promote its product.

6. Implications

General Comments

As a matter of principle, the industry through AEIA, should have major input into decision making on the development of new databases that have the potential to benefit the industry and the broader community. It is recommended that the Egg Committee of RIRDC maintain financial support for the continuation of any statistical series that has AEIA support. It is also recommended that RIRDC allocate resources for ongoing consultation with the industry on database needs.

6.1 Chick Placements

It is almost certain that the continuation of the chick placements database, and the provision of advice and analysis related to placements, has led to a more stable, predictable and profitable industry, especially in those states most directly affected by deregulation of egg marketing arrangements. This is likely despite the emergence of significant problems with this indicator which have been discussed elsewhere. Therefore, it is recommended that support for continuation of this database and its associated elements, including the monthly updates, continue.

Because the experience of the past two years shows that reliance on chick placements as an indicator of the outlook for the egg market means that the quality and level of advice to egg producers, hatcheries, marketers and others could be improved, strategies require development to deal with this issue.

The first strategy recommended involves the development of other databases. This recognises there are other indicators which may also be used by the industry to assist in providing a clearer indication of the market outlook and that their development has the potential to broaden the scope of advice to be relied on and, therefore, the quality of the advice provided. This includes a modified, simplified version of the production forecast database and farm gate prices. The author believes the industry should assess whether developing and maintaining such statistical series are justified and will assist it in making a more informed judgement about the market outlook and, therefore, play a role in achieving improved industry profitability.

The second strategy is to recognise that abnormally high losses may occur at any time due either to the re-emergence of a virulent strain of a known virus or the emergence of new viruses which cause significant production or mortality losses. It is recommended that RIRDC consider the merits of supplementary funding, where justified, to enable an understanding of the economic significance of such events.

6.2 Production Forecasts

The major implication arising from the development of this database series is there is almost certainly a significant underestimation of the importance and significance of the Australian egg industry in terms of its contribution to income, employment and other measures of economic activity. This has political and policy implications because indicators like GVP would be relied on for the assessment of policy and political priorities. This also has flow on effects on the demand side through an underestimation of egg consumption and, therefore, the place of eggs in the diet. As referred to elsewhere in this report, this also highlights the lack of accuracy of official statistics.

It is recommended that this outcome be recognised as having benefits that should lead to an improved understanding of both the importance of the egg industry to the national economy and the place of eggs in the diet.

However, there is a need to develop an appropriate database to give a more accurate idea of how the industry deals with replacement of old stock. It is recommended that a statistical series based on

slaughtering of spent hens be developed. The significance of this is that it will provide a clearer understanding of how producers adapt their replacement programs to differences in current and/or expected economic conditions. More importantly, it should mean a more accurate picture of the national flock size is possible. Any improvement in flock size accuracy should lead to an improvement in the quality of industry statistics and industry advice.

6.3 Economic Outlook Talks

The major implication arising from the economic outlook talks are that they are well supported by the industry in most parts of the country. This is clear both from the attendance level and the range of questions that are asked by producers. It is likely that the talks generate significant economic benefits well beyond the costs associated with the talks.

It is recommended that the talks continue in their present format but that consideration is given to targeting the talks to link better with other industry events. While this would mean 'one off' trips are conducted instead of the present approach of a round Australia trip to states other than New South Wales, it has the potential to attract a larger attendance and, therefore, a greater level of collective benefit for the industry.

It is also recommended that regular talks take place in Tasmania if that is supported by the local industry. This recognises the expectation that Tasmanian producers will become more exposed to the impact of deregulation, even if existing statutory marketing arrangements in Tasmania are retained.

6.4 Web Site

The objective of developing a web site within the life of this project was not achieved. However, site design is well developed. Discussions have been held with two organisations that have submitted quotes for site design and development. It is recommended that support be provided for the development of a web site in 1999-2000.

7. Recommendations

Following are recommendations related to this report:

1. That as a matter of principle, financial support is maintained for the continuation of any statistical series that has the support of AEIA.
2. That the Egg Committee of RIRDC provides support for ongoing consultation through AEIA on industry database needs.
3. That the Egg Committee of RIRDC ensures sufficient resources are available to enable continuation of reporting on monthly chick placements and the Annual Statistical Publication.
4. That the Egg Committee of RIRDC continue to support economic outlook talks, with the timing and frequency to be determined by the likely level of interest for such talks from within the industry at the state/regional level and other industry events.
5. That in the context of the development and enhancement of national industry databases, RIRDC consider the merits of supplementary funding, where justified, to enable a understanding of the economic significance of unforeseen events which may lead to large economic or production losses.
6. That support is provided for the establishment of a new slaughtering database.
7. That support is provided for the development of a web site in 1999-2000 with nominal support for its ongoing maintenance.

8. Appendices

8.1 Marek's Disease Mortality Survey Form

MORTALITY TO 20 WEEKS

FARM SIZE

MORTALITY RATE (PER CENT)

	1995		1996		1997		
Under 2000	() Nil	()	Nil	()	Nil	()	
	Under 2%	()	Under 2%	()	Under 2%	()	
2001-5000	() 2-5%	()	2-5%	()	2-5%	()	
	5-8%	()	5-8%	()	5-8%	()	
5001-10000	() 8-11%	()	8-11%	()	8-11%	()	
	11-15%	()	11-15%	()	11-15%	()	
10001-25000	() 15-20%	()	15-20%	()	15-20%	()	
	20-25%	()	20-25%	()	20-25%	()	
25001-50000	() 25-30%	()	25-30%	()	25-30%	()	
	30-40%	()	30-40%	()	30-40%	()	
50001-100000	() 40-50%	()	40-50%	()	40-50%	()	
	50-60%	()	50-60%	()	50-60%	()	
100001-200000	() Over 60%		____%	Over 60%	____%	Over 60%	____%
Over 200000	()	Mortality Trend	Up/Down (<i>Please Circle</i>)				

PRODUCER'S NAME NOT REQUIRED

***Please return BY 13 FEBRUARY 1998
in the enclosed reply paid envelope***

Or send by Facsimile to AEIA, (02) 9570 9763

THANK YOU FOR YOUR CO-OPERATION

MAREK'S DISEASE MORTALITY SURVEY FORM

MORTALITY 20-80 WEEKS

FARM SIZE	MORTALITY RATE (PER CENT)							
	1995		1996		1997			
Under 2000	()	Nil	()	Nil	()	Nil	()	
		Under 2%	()	Under 2%	()	Under 2%	()	
2001-5000	()	2-5%	()	2-5%	()	2-5%	()	
		5-8%	()	5-8%	()	5-8%	()	
5001-10000	()	8-11%	()	8-11%	()	8-11%	()	
		11-15%	()	11-15%	()	11-15%	()	
10001-25000	()	15-20%	()	15-20%	()	15-20%	()	
		20-25%	()	20-25%	()	20-25%	()	
25001-50000	()	25-30%	()	25-30%	()	25-30%	()	
		30-40%	()	30-40%	()	30-40%	()	
50001-100000	()	40-50%	()	40-50%	()	40-50%	()	
		50-60%	()	50-60%	()	50-60%	()	
100001-200000	()	Over 60%		____%	Over 60%	____%	Over 60%	____%
Over 200000	()	Mortality Trend		Up/Down <i>(Please Circle)</i>				

PRODUCER'S NAME NOT REQUIRED

*Please return BY 13 FEBRUARY 1998
in the enclosed reply paid envelope*

Or send by Facsimile to AEIA, (02) 9570 9763

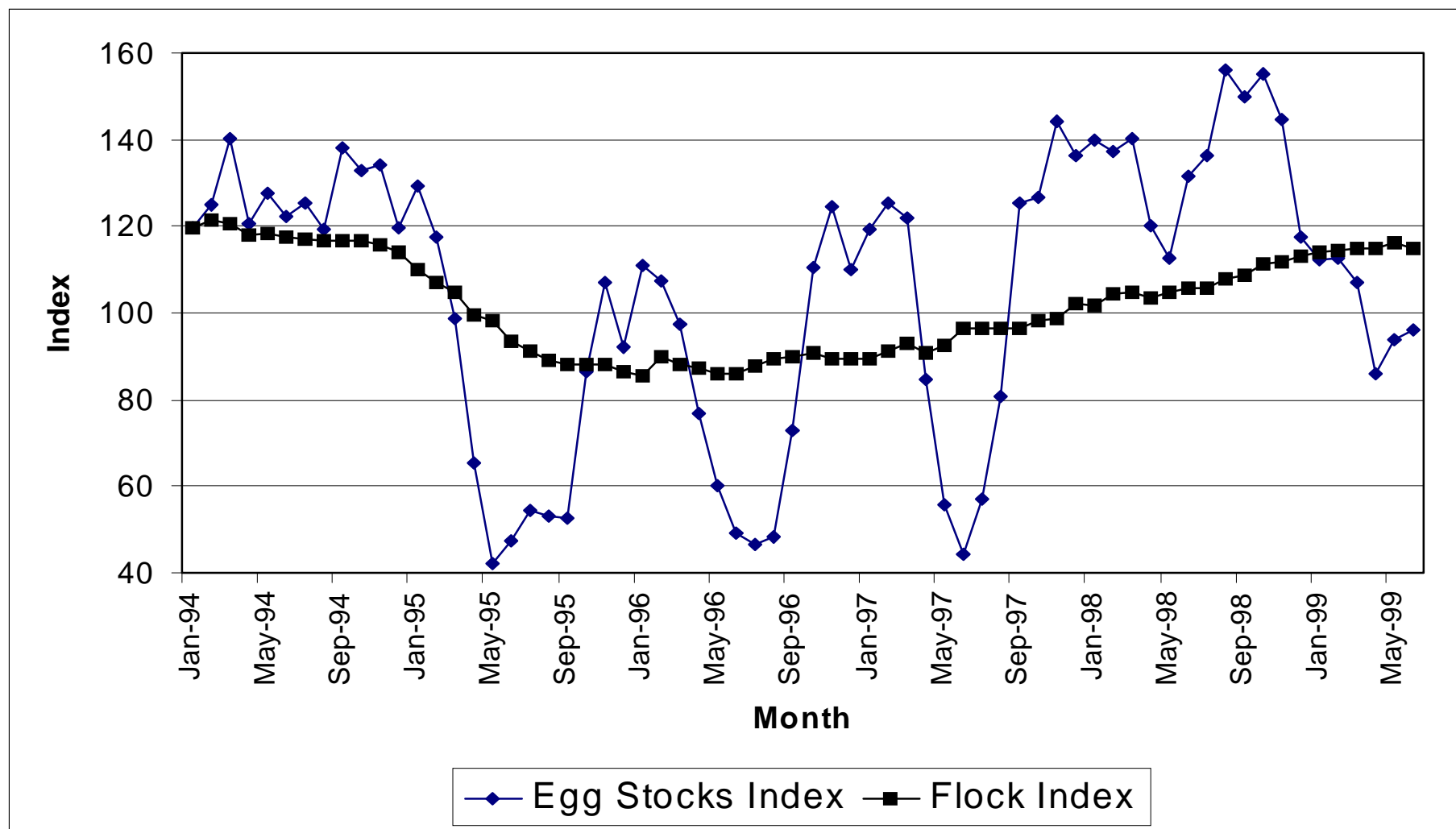
THANK YOU FOR YOUR CO-OPERATION

8.2 Proposed Website Design

AEIA WEB SITE STRUCTURE

1	AEIA	2	STATISTICS	3	PRODUCTION	4	EGG MARKETING	5	EGGS AT HOME	6	RECIPES	7	MANUFACTURING
1.1	Role	2.1	General Statistics	3.1	Agribusiness	4.1	Regulations	5.1	Egg Structure and			7.1	Industry Structure
1.2	Mission Statement	2.2	Industry Statistics		Structure	4.1.1	Statutory		Composition			7.2	Product Types
1.3	M'ship Categories		(secure site- password sought)	3.2	Members of Flock	4.1.2	Non-Statutory	5.2	Egg Freshness			7.2.1	Liquid
1.3.1	Corporate			3.3	Breeding	4.2	Egg Size	5.3	Egg Storage			7.2.2	Frozen
	Rationale	2.2.1	Projected Population	3.4	Hatching	4.3	Shell Colour	5.4	Nutrition			7.2.3	Dried
	Target Grouping	2.2.2	Gross Value of	3.5	Rearing	4.4	Carton Size	5.5	Public Health -			7.2.4	Specialty
	Structure	2.2.3	Production	3.6	Laying	4.5	Packaging		Myths and Realities			7.3	Production Stages
	Services Available	2.2.4	Location	3.7	Moulting	4.6	Labelling	5.5.1	Cholesterol			7.4	Advantages of Egg
1.3.2	Associate	2.2.5	Chick Placements	3.8	Replacement	4.6.1	Standard	5.5.2	Residues, Antibiotics				Products
	Rationale	2.2.6	Flock Size	3.9	Egg Formation	4.6.2	Barn		and Hormones				
	Target Grouping	2.2.7	Exports/Imports	3.1	Bird Nutrition	4.6.3	Free Range	5.5.3	Salmonella				
	Services Available	2.2.8	Retail Prices	3.11	Bird Health	4.6.4	Organic	5.6	Functionality				
	Categories	2.2.9	Feed Ingredient	3.12	Production Systems	4.6.5	Omega 3	5.7	How to Cook Eggs				
1.3.3	Individual		Prices	3.12.1	Cage	4.6.6	Vegetarian						
	Rationale	2.2.10	Consumption	3.12.2	Barn	4.7	Qual Assurance						
	Target Grouping	2.2.11	World Production	3.12.3	Free Range	4.7.1	Egg Collection						
	Services Available	2.2.12	US Production	3.12.4	Backyard	4.7.2	Checking						
1.4	Membership Issues	2.2.13	Country Profiles	3.13	Animal Welfare	4.7.3	Grading						
1.5	Planning	2.2.13.1	Australia	3.13.1	Fact Sheet	4.7.4	Distribution						
1.5.1	Strategic	2.2.13.2	USA	3.13.2	Codes of Practice	4.7.5	Residues						
1.5.2	Annual	2.2.13.3	Canada	3.13.3	Myths and Realities								
1.5.3	Financial	2.2.13.4	China										
1.6	Annual Report	2.2.13.5	India										
1.7	Codes of Practice	2.2.13.6	Thailand										
1.7.1	Types of Codes	2.2.13.7	Denmark										
1.7.2	Ordering Codes	2.2.13.8	Italy										
		2.2.13.9	The Netherlands										

8.3 Relationship between Flock Size and Egg Stocks



Sources: Egg Stocks: Adapted from Rowly Horn “Australian Inventory Survey”, various issues. Unpublished data.
 Flocks: Adapted from DPIE/AFFA “Monthly Chick Placements, various issues. Unpublished data.

8.4 Trade in Dried Egg Products

Year	Imports Value \$	Imports Volume Dozen Shell Egg Equivalent	Imports Tonnes
1989-90	124003	230180	11.509
1990-91	705077	1170120	58.506
1991-92	424452	820060	41.003
1992-93	568281	1213120	60.656
1993-94	652532	1442340	72.117
1994-95	719172	1620960	81.048
1995-96	4103859	6895878	469.384
1996-97	3466970	5956801	413.407
1997-98	3514474	5426422	411.170

Source:

Australian Bureau of Statistics – International Trade Subscription Service: Monthly import statistics for egg products. Unpublished data. Copyright in ABS data resides with the Commonwealth of Australia. Used with permission.

8.5 Weekly Production Forecast Survey Results

Flock Size, Egg Production, Rate of Lay and Average Age				
Week Ending	Birds	Production Million Dozen	Rate of Lay %	Average Age Weeks
24/12/94	10078558	3978686	67.67	55.00
31/12/94	10100079	3945102	66.96	55.00
07/01/95	10099433	3848580	65.33	55.00
14/01/95	10108810	3883585	65.86	55.00
21/01/95	10137658	3903183	66.00	55.00
28/01/95	10121307	3905089	66.14	55.00
04/02/95	10109578	3951257	67.00	55.00
11/02/95	10087023	3966213	67.41	56.00
18/02/95	10125277	3953339	66.93	56.00
25/02/95	10184493	3983434	67.05	57.00
04/03/95	10237184	4026750	67.43	57.00
11/03/95	10264800	4022441	67.18	58.00
18/03/95	10209863	4066649	68.28	58.00
25/03/95	9947983	3885173	66.95	56.58
01/04/95	9996628	3888304	66.68	56.62
08/04/95	9998440	3876239	66.46	56.86
15/04/95	10023184	3831158	65.53	56.23
22/04/95	10156233	3797237	64.09	56.60
29/04/95	10097071	3793672	64.41	57.18
06/05/95	10060097	3766016	64.17	56.09
13/05/95	10006950	3735239	63.99	56.40
20/05/95	10023223	3729297	63.78	56.10
27/05/95	9930076	3744745	64.65	56.51
03/06/95	10045736	3746820	63.94	56.01
10/06/95	10050621	3750072	63.96	56.64
17/06/95	10050220	3765028	64.22	56.27
24/06/95	10059703	3764191	64.15	56.53
01/07/95	9985178	3766521	64.66	56.39
08/07/95	9994823	3796146	65.11	56.31
15/07/95	9943257	3783185	65.22	56.80
22/07/95	9939957	3800523	65.55	56.94
29/07/95	9949688	3817211	65.77	57.12
05/08/95	9953001	3801026	65.47	57.48
12/08/95	9940846	3807654	65.66	57.37
19/08/95	10001890	3799819	65.13	57.54
26/08/95	10018364	3772153	64.55	57.79
02/09/95	10059903	3803749	64.82	57.74
09/09/95	10102082	3844648	65.24	58.37
16/09/95	10081691	3881348	66.00	58.04
23/09/95	10033346	3867204	66.07	58.29
30/09/95	9946165	3888682	67.02	58.27
07/10/95	10341180	4101521	67.99	56.00
14/10/95	10370142	4053621	67.01	57.00
21/10/95	10334048	4069170	67.50	56.00
28/10/95	10374416	4026269	66.53	56.00

Weekly Production Forecast Survey Results				
Flock Size, Egg Production, Rate of Lay and Average Age				
Week Ending	Birds	Production Million Dozen	Rate of Lay %	Average Age Weeks
04/11/95	10448387	4065262	66.70	56.00
11/11/95	10397370	4095451	67.52	57.00
18/11/95	10414354	4153251	68.37	57.00
25/11/95	10382966	4199571	69.34	58.00
02/12/95	10391638	4196963	69.24	57.00
09/12/95	10495526	4238063	69.22	58.00
16/12/95	10366862	4230973	69.96	59.00
23/12/95	10171966	4058652	68.40	58.00
30/12/95	10172137	4019826	67.75	58.00
06/01/96	10097759	3984894	67.65	59.00
13/01/96	10157275	3984925	67.26	59.00
20/01/96	10101478	3987400	67.67	59.00
27/01/96	10084562	3982574	67.70	59.00
03/02/96	10105184	3990211	67.69	58.00
10/02/96	10048454	3978411	67.87	58.00
17/02/96	10048377	3998757	68.22	57.00
24/02/96	10047909	4000886	68.26	57.00
02/03/96	10001157	4032705	69.12	57.00
09/03/96	10115451	4101720	69.51	57.00
16/03/96	10156626	4099613	69.20	57.00
23/03/96	10318845	4116284	68.38	57.00
30/03/96	10177034	4106467	69.17	57.00
06/04/96	10225275	4120299	69.08	56.00
13/04/96	10274051	4125874	68.84	56.00
20/04/96	10180855	4077311	68.66	56.00
27/04/96	10139089	4080584	68.99	56.00
04/05/96	10238113	4141682	69.35	56.00
11/05/96	10237651	4202148	70.36	56.00
18/05/96	10209064	4213720	70.76	56.00
25/05/96	10175138	4215196	71.02	56.00
01/06/96	10232923	4211396	70.55	56.00
08/06/96	10164700	4198348	70.81	56.00
15/06/96	10105140	4181128	70.93	56.00
22/06/96	10157184	4189107	70.70	56.00
29/06/96	10131502	4186879	70.84	56.00
05/07/96	10281064	4130321	68.87	57.00
12/07/96	10213699	4121824	69.18	56.00
19/07/96	10259274	4121633	68.87	56.00
26/07/96	10325666	4150956	68.91	56.00
03/08/96	10498230	4183112	68.31	56.00
10/08/96	10578055	4206761	68.18	56.00
17/08/96	10551257	4197177	68.19	56.00
24/08/96	10485778	4210368	68.83	55.00
31/08/96	10497438	4227329	69.03	56.00

Weekly Production Forecast Survey Results				
Flock Size, Egg Production, Rate of Lay and Average Age				
Week Ending	Birds	Production Million Dozen	Rate of Lay %	Average Age Weeks
07/09/96	10509005	4243059	69.22	56.00
14/09/96	10491744	4233248	69.17	56.00
21/09/96	10482344	4259188	69.65	56.00
28/09/96	10462334	4292455	70.33	56.00
05/10/96	10232618	4235687	70.96	56.00
12/10/96	10251285	4234777	70.82	56.00
19/10/96	10212490	4257043	71.46	56.00
26/10/96	10209857	4268018	71.66	57.00
02/11/96	10176734	4270798	71.94	57.00
09/11/96	10147256	4281903	72.34	57.00
16/11/96	10163389	4301385	72.55	57.00
23/11/96	10233069	4306453	72.14	57.00
30/11/96	10200333	4300731	72.28	58.00
07/12/96	10154713	4246397	71.69	57.00
14/12/96	10420958	4348861	71.54	57.00
21/12/96	10424360	4318859	71.02	57.00
28/12/96	10423830	4246620	69.84	57.00
04/01/97	10040664	3992206	68.16	54.83
11/01/97	10032778	3994030	68.25	55.08
18/01/97	10041448	4009188	68.45	55.00
25/01/97	10100501	4046888	68.68	55.46
01/02/97	10153649	4073373	68.77	55.15
08/02/97	9983037	4048963	69.53	55.00
15/02/97	10016419	4039199	69.13	55.03
22/02/97	10232647	4056759	67.96	54.09
01/03/97	10131483	4112060	69.58	54.33
08/03/97	10071740	4128902	70.28	54.22
15/03/97	10311334	4182503	69.54	53.27
22/03/97	10337472	4199513	69.64	52.71
29/03/97	10331111	4222596	70.07	52.54
04/05/97	10310457	4139046	68.82	53.80
12/04/97	10312397	4143932	68.89	54.10
19/04/97	10231953	4133731	69.26	54.50
26/04/97	10244681	4177610	69.91	54.50
03/05/97	10252022	4248225	71.04	54.40
10/05/97	10225809	4242005	71.11	54.10
17/05/97	10222059	4258880	71.42	54.40
24/05/97	10205057	4260165	71.56	54.10
31/05/97	10518237	4334478	70.64	54.00
07/06/98	10467467	4307559	70.55	54.30
14/06/97	10434532	4314112	70.88	54.00
21/06/97	10442030	4298167	70.56	53.90
28/06/97	10428819	4319197	71.00	53.60

Weekly Production Forecast Survey Results				
Flock Size, Egg Production, Rate of Lay and Average Age				
Week Ending	Birds	Production Million Dozen	Rate of Lay %	Average Age Weeks
05/07/97	10216356	4093158	68.68	54.49
12/07/97	10338418	4105055	68.07	54.61
19/07/97	10284026	4108717	68.49	55.16
26/07/97	10342599	4119320	68.28	55.04
02/08/97	10364186	4210932	69.65	55.20
09/08/97	10399830	4223997	69.63	54.94
16/08/97	10322037	4205540	69.85	54.67
23/08/97	10321566	4180267	69.43	54.86
30/08/97	10190096	4102099	69.01	54.84
06/09/97	10063723	4040363	68.82	54.14
13/09/97	10185545	4042919	68.04	53.89
20/09/97	10142880	4082486	69.00	54.25
27/09/97	9998649	4054930	69.52	54.08
04/10/97	9988811	4041024	69.35	54.92
11/10/97	10124129	4071274	68.94	52.83
18/10/97	10185953	4098702	68.98	52.84
25/10/97	10033161	4089087	69.87	52.32
01/11/97	10113540	4145826	70.27	52.69
08/11/97	10090642	4176163	70.95	52.97
15/11/97	10094428	4206845	71.44	52.96
22/11/97	10106960	4226129	71.68	53.36
29/11/97	10014985	4216097	72.17	53.01
06/12/97	9997508	4177047	71.62	52.85
13/12/97	10137516	4192827	70.90	51.53
20/12/97	9968836	4115763	70.78	51.50
27/12/97	9889758	4098012	71.03	51.36
03/01/98	10263825	4176508	69.76	51.18
10/01/98	10304204	4210269	70.23	51.22
17/01/98	10237190	4223698	70.73	51.26
24/01/98	10217792	4240773	71.15	51.78
31/01/98	10246606	4300781	71.95	52.03
07/02/98	10325898	4343844	72.12	51.66
14/02/98	10349624	4367448	72.34	51.63
21/02/98	10222597	4284639	71.85	51.63
28/02/98	10219412	4309417	72.29	51.63
07/03/98	10187334	4327754	72.83	51.69
14/03/98	10284250	4338256	72.31	51.59
21/03/98	10323487	4325220	71.82	51.44
28/03/98	10349769	4357140	72.17	51.42
04/04/98	9868530	4040213	70.18	49.40
11/04/98	9795754	4049122	70.86	49.47
18/04/98	9739635	4050535	71.29	49.62
25/04/98	9708579	4045153	71.43	49.88

Weekly Production Forecast Survey Results				
Flock Size, Egg Production, Rate of Lay and Average Age				
Week Ending	Birds	Production Million Dozen	Rate of Lay %	Average Age Weeks
02/05/98	9772014	4076814	71.52	49.86
09/05/98	9789169	4062270	71.14	50.11
16/05/98	9772849	4059332	71.21	50.06
23/05/98	9721237	4059175	71.58	50.37
30/05/98	9699854	4058794	71.73	50.66
06/06/98	9697528	4070087	71.95	50.87
13/06/98	9761211	4064498	71.38	50.56
20/06/98	9666730	4036512	71.58	50.55
27/06/98	9820504	4030995	70.37	50.09
04/07/98	9909135	3911368	67.67	50.88
11/07/98	10090257	3940005	66.94	50.87
18/07/98	10179995	4089991	68.87	50.61
25/07/98	10202863	4127764	69.35	51.05
01/08/98	9994239	4156186	71.29	51.65
08/08/98	9933150	4137655	71.41	51.91
15/08/98	9933150	4108326	70.90	51.62
22/08/98	9832549	4113242	71.71	51.52
29/08/98	9828582	4120984	71.88	51.89
05/09/98	9703540	4086612	72.20	51.95
12/09/98	9951516	4104181	70.70	51.51
19/09/98	9923400	4089488	70.65	51.46
26/09/98	9901740	4101320	71.01	51.38
03/10/98	9885060	4115905	71.38	51.00
10/10/98	9912931	4101544	70.93	51.25
17/10/98	9931566	4116167	71.05	51.46
24/10/98	9939592	4114982	70.97	51.52
31/10/98	9981454	4140543	71.11	51.77
07/11/98	9990883	4172674	71.60	52.32
14/11/98	10045621	4190730	71.51	52.71
21/11/98	10059094	4222234	71.96	52.89
28/11/98	10040007	4222798	72.10	52.95
05/12/98	10149327	4232260	71.49	53.04
12/12/98	10258482	4237074	70.81	52.67
19/12/98	10194844	4184389	70.36	52.29
26/12/98	10155743	4193660	70.79	52.41
Average (209 Weeks)	10191432	4113391	69.52	54.95
High	10578055	4367448	72.83	59.00
Low	9666730	3729297	63.78	49.40
Percentage Difference – High to Low	9.43	17.11	14.19	19.43

Source: Australian Egg Industry Association: Production Forecast Surveys

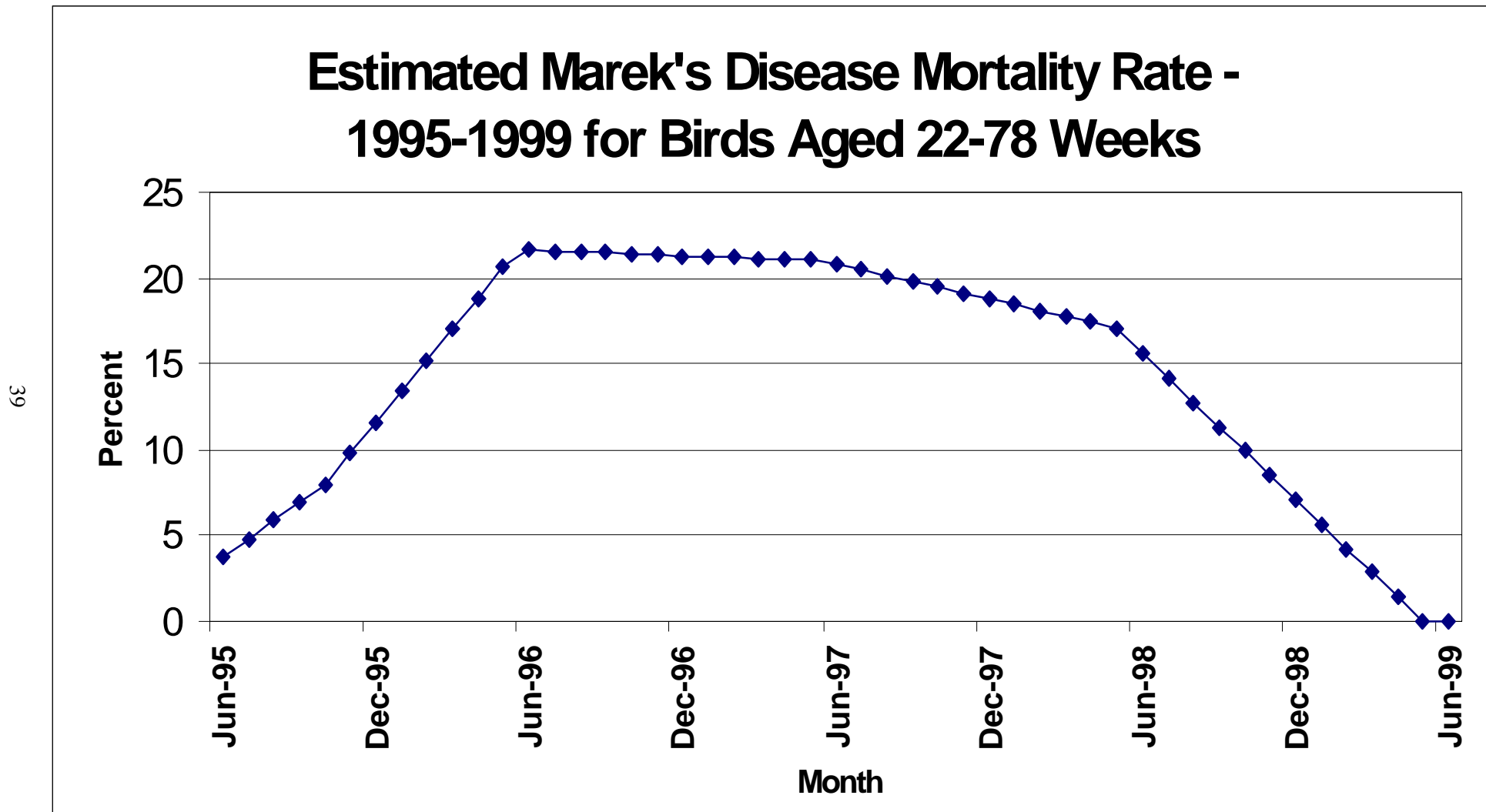
8.6 Overview of Moulting Practice in the Australian Egg Industry, 1995-98

Quarter – 13 Weeks to	Average Flock Size	Proportion of Industry Surveyed for Moulting	Derived Average Flock Size	Average Number of Birds in Moult	Derived Proportion Flock Commencing Moult
04/07/95	10125387	56.0	5670217	48574	0.86
07/07/95	10037441	44.0	4416474	49925	1.13
06/10/95	9997309	44.0	4398816	54306	1.23
05/01/96	10358538	47.0	4868513	46021	0.95
05/04/96	10112316	49.0	4955035	22310	0.45
05/07/96	10190053	60.0	6114032	22611	0.37
04/10/96	10433530	55.0	5738441	37158	0.65
03/01/97	10250069	64.0	6560044	32670	0.50
03/04/97	10137253	57.0	5778234	33246	0.58
04/07/97	10330425	61.1	6311889	23081	0.37
03/10/97	10243839	62.3	6381912	34952	0.55
02/01/98	10057402	62.5	6285876	31773	0.51
03/04/98	10271691	62.0	6368449	15634	0.50
03/07/98	9754892	60.1	5862690	24335	0.42
02/10/98	9952624	59.4	5911859	22914	0.39
01/01/99	10041893	59.4	5964884	24775	0.42

Source:

Australian Egg Industry Association: Production Forecast Surveys.

8.7 Marek's Disease Mortality Rates



Source: Australian Egg Industry Association, Marek's Disease Survey, 1998. Unpublished.

8.8 Comparative Rates of Lay in the Australian and US Industries

Quarter	Rate of Lay	
	Australia	United States of America
March 1995	66.79	71.30
June 1995	64.46	71.97
September 1995	65.51	71.27
December 1995	68.12	72.17
March 1996	68.29	71.37
June 1996	70.07	72.27
September 1996	68.98	72.17
December 1996	71.56	72.50
March 1997	69.08	71.93
June 1997	70.43	71.97
September 1997	68.96	71.70
December 1997	70.61	72.53
March 1998	71.57	71.70
June 1998	71.25	72.63
September 1998	70.35	72.37
December 1998	71.23	72.20

Source:

Australian figures - Australian Egg Industry Association Production Forecast Surveys.

US figures – US Department of Agriculture “Livestock, Dairy and Poultry Situation and Outlook”, various issues

8.9 Calculation of Maximum Flock Size Excluded from Australian Bureau of Statistics Surveys

- ABS does not include in its agricultural statistical series farms with an estimated value of agricultural output of under \$22,500 per annum;
- Assuming gross value of production at \$1.60 per dozen, this would exclude all farms which produce 14,062 eggs per annum or less;
- This equates to 461 eggs per day;
- Based on a rate of production of 70%, this suggests that any flock of 660 birds or less will be excluded from the survey.

8.10 Examples of Coverage of the Market Outlook in “The Eggsaminer” and “Focus on Research”

AUGUST 1997: “The Eggsaminer”

25% PLACEMENTS GROWTH YET MARKET IS TIGHT. WHY?

Chick placements over the last twelve to eighteen months are running at levels approximately 25% higher than the corresponding period two years ago. This is one conclusion from the long period of buoyant chick placement levels that have been monitored by the Australian Egg Industry Association over the past seven years.

After taking flock size estimates and market conditions into account, this suggests Marek's disease remains the major reason for strong chick placements growth. Based on discussions with a number of people associated with the industry, it is almost certain that mortality due to Marek's disease accounts for at least 10% of the increase in placements.

DECEMBER 1997: “The Eggsaminer”

SLAUGHTERING ONLY OPTION TO REDUCE SURPLUS IN SHORT TERM

Sharp increases in slaughtering rates look like being the only option to producers if any meaningful attempt is going to be made to bring current market surpluses under control.

Actual and forecast chick placements through to December suggest that flock size will continue to grow into the early part of 1998 and either stabilise or fall around Easter.

Chick placements continue at levels well above the historical average. Placements for the six months ending December this year are about 330,000, or over 6% higher than the six yearly average for this period.

Now that The Marek's Company has obtained a permit for its Marek's disease vaccines, it can be expected that flock livability will improve sharply.

This can only mean one thing for chickens hatched in December, more eggs. Further information is shown in the graphs below.

FEBRUARY 1998: “The Eggsaminer”

MAREK'S MAYHEM MEASURED

The Australian Egg Industry Association has been able to make a preliminary assessment of the impact of Marek's disease losses on flock size and egg production in the three years ending December 1997. An indication of the impact of Marek's losses can be obtained by examining the 22-78 week flock size graph – see below.

Results indicate that losses have been significant and should go a long way in explaining why chick placements have been historically high during 1996-97.

What are the Findings?

The preliminary survey, which covered returns from approximately sixty producers, showed mortality rates as follows: -

- 1995 – 10.4% mortality to 20 weeks; 11.7% from 20-80 weeks;
- 1996 – 6% mortality to 20 weeks; 13% from 20-80 weeks;
- 1997 – 5.3% mortality to 20 weeks; 10.2% from 20-80 weeks.

Because losses were higher in young stock in 1995, the impact on flock size was quickly felt during that year. Losses were higher in layers in 1996. This meant that losses remained significant throughout that year. The impact on flock size due to Marek's disease losses gradually lessened through 1997 due to improved flock management. It is expected to decrease significantly by April 1998 because of the availability of The Marek's Company's Rispen's vaccine which has had widespread use since last November.

If the vaccine is totally efficacious, the impact of Marek's disease losses on flock size should be negligible by the middle of next year.

At this stage, the impact of Marek's disease on flock size has only been taken into account in relation to the 22-78 week period. The graph on page 1 shows how losses significantly reduced the layer flock through 1995 and 1996. The graph also shows how the recovery in flock size has been steady. Survey results are also likely to go a long way towards explaining why the egg market has been tight from about mid-1995 to September 1997, despite very high levels of chick placements.

Industry Must Adjust To Mortality Reality – Comment

Producers are strongly encouraged to closely examine the current market situation and their ability to either meet or exceed customer needs and farmgate returns. Flock management programs need to be altered to recognise that mortality rates are likely to be closer to the historical norm.

Want Further Information?

Further information will be provided in a paper to be delivered at PIX '98 in Surfers Paradise in April.

JUNE 1998: "The Eggsaminer"

INDUSTRY ADDRESSING SURPLUS CHALLENGE

Clear signs that egg producers and marketers are addressing the challenge of rising surpluses is evident in the latest hatchery statistics released by the Department of Primary Industries and Energy.

Revised figures for April show a dramatic fall in chick placements of approximately 157,000. Anecdotal evidence suggests there were a number of late cancellations of orders for day old chickens in April. Forecast placements for May and June are also well down on the previous year.

The other sign the industry is addressing the surplus challenge is anecdotal evidence of increased slaughtering rates during the first half of 1998.

This trend is clear from the 22-78 week graph. The upper line, which assumes there has been no impact on mortality due to Marek's disease, shows a steady fall in the flock size in the 22-78 week age through to November this year. The bottom line follows trends in flock size based on results of the AEIA Marek's disease survey this year. It also assumes that the Rispen's vaccine will be totally efficacious. This line shows continued growth in flock size during October but a levelling out in November.

Production May Peak in October

The reality is that flock size and egg production are likely to grow but at a less pronounced level than suggested by this lower line. This is because mortality rates are lower but losses are still being experienced due to Marek's disease. These forecasts suggest flock size will peak about October and then fall. However, it will remain to be seen whether this occurs. This is because forecasts are normally revised upwards.

The chick placements variation graph shows that since December producers have lowered replacement levels when compared to twelve months earlier. Cumulative placements for the latest five months are running at about 5% below the corresponding period in 1997. This is the clearest evidence that the industry has responded to lower mortality rates in young stock in recent months. Time will tell whether this response has been sufficient to contain the surplus and to restore market equilibrium.

JULY 1998: "The Eggsaminer"

MORE EFFORT REQUIRED TO REDUCE FLOCK SIZE

Sharp upward revisions in chick placements for May and June suggest the industry is not doing enough to contain flock growth and egg supply. While chick placements are generally falling on a month by month basis when compared to twelve months earlier, it is unclear whether the fall is sufficient to sustain a longer term reduction in flock size to a level where supply and demand for eggs are again in equilibrium.

Revised placements reveal that the sharp fall in chick sales in April has not been repeated in May or June. However, early forecasts suggest there is some hope that the July placement levels will be relatively low.

The relatively high placement figures for May and June are going to have an impact on total flock size through to late next year and will further limit the industry's ability to lower egg supply towards equilibrium during that period. This does not mean that equilibrium will not be achieved during 1999, it just makes it harder to achieve.

Further information is available from the thirteen-month chick placements graph and the five monthly graph, which compares cumulative chick placements this year to last year.

OCTOBER 1998: "The Eggsaminer"

INDUSTRY RESPONSE CONTINUES

The emergency response following the identification of Newcastle disease virus on three New South Wales farms is continuing. The latest situation report, issued by NSW Agriculture on 20 October, provides an update of progress in relation to control measures, tracing and surveillance, movement controls and other matters.

AEIA continues to work closely with NSW Agriculture, Commonwealth Department of Agriculture, Fisheries and Forests (former Department of Primary Industries and Energy) and the chicken meat industry in the overall management of this response.

Where Did the Outbreak Come From? – Clarification

In talks to producers in Victoria, South Australia and Western Australia, in late September – early October, advice was provided that the virus was originally detected in started pullets on the first infected property. This is not correct. The virus was first detected in twenty-week old layer hens.

DECEMBER 1998: “The Eggsaminer”**MARKET MAY BE IN EQUILIBRIUM BY EASTER 1999**

There are increasing signs that the national egg market may be in equilibrium by Easter 1999. There appear to be two reasons for this dramatic development. Firstly, there are clear signs that chick placements are settling down to a level which is about 10% below the placement level during the period when mortality rates were relatively high. Secondly, there is continued anecdotal evidence of high slaughtering rates. The trend in chick placements is clear from the attached graph which compares chick placements for the latest five monthly period with the corresponding months in which high losses were experienced due to the very virulent Marek's disease virus.

MARCH 1999: “Focus on Research”**WELL BALANCED MARKET LOOKING INCREASINGLY LIKELY**

There is an increasing likelihood that the egg market will remain relatively well balanced for the remainder of 1999. This is mainly because of the sharp fall in chick placements levels over the past twelve months.

Forecast chick placements for the five months ending March 1999 are about 14% below the corresponding five months when Marek's disease was a serious industry problem. This in line with advice provided to AEIA by Dr Clive Jackson in August last year about the need to adjust placement levels.

This leads AEIA to conclude that the layer flock size probably peaked around January or February this year. It now looks set for a short but sharp downturn in the period until July, unless producers defer slaughtering plans. This may be necessary to avoid over correction in the market and to stabilise flock size and production. This means producers should exercise as much flexibility as is possible in the short term.

JUNE 1999: “Focus on Research”**WATCH OUT FOR SEASONAL TURNAROUND**

As indicated last month, flock size is still forecast to bottom out in July in what looks like being a short, sharp downturn. The egg market may tighten during July and there may be opportunities to negotiate better returns from customers.

Because the seasonal peak in egg demand occurs during winter, seasonal tightening in the market can be expected to be exacerbated by this forecast downturn in flock size. The normal seasonal trends do not appear to be evident in the year to date, with little change in levels of egg stocks apparent during June.

However, flock size is forecast to grow strongly from August to October. This will coincide with the spring flush. This means that within a matter of weeks the market could be again showing signs of over supply. It is possible that if the industry does not prepare for this that the upturn in stock levels and downward pressure on prices may prove to be stronger than usual. Therefore, it is important to plan replacement programs around these two factors. Producers and marketers should keep a very close watch for changes in the market environment and be prepared to adjust replacement programs accordingly.