Code of Practice

For the Placement of Fertiliser in New Zealand

The Spreadmark Code of Practice

ISSUED TO:

COPY NUMBER:

1. INTRODUCTION

The Spreadmark programme was established by the NZ Groundspread Fertilisers Association in 1994. It was subsequently expanded by a group with representatives from Federated Farmers, the NZ Groundspread Fertilisers Association, the N Z Agricultural Aviation Association, fertiliser companies and FertResearch.

The Spreadmark scheme is a fertiliser placement quality assurance programme. It has as its objective the placement of fertilisers in locations where they can be of the most agricultural benefit and the least environmental harm. The scheme accredits fertiliser spreading companies, both aerial and groundspread, provided they have certified spreading machinery, trained operators and an appropriate quality management system which ensures that farmer/grower outcomes are met and environmental sustainability is protected. Overall systems are subject to a regular independent audit to ensure that both farmers/growers and Regional Councils can have confidence in the programme.

There is no doubt that the proper placement of fertiliser is of considerable agronomic benefit to farmers and growers and will help protect the environment from the undesirable side effects of poor fertiliser spreading practices.

The precision placement of fertiliser depends on a number of factors. It requires the careful integration of operator skills, sound equipment and appropriate fertilisers. It is the integration of these factors that is at the heart of the Spreadmark scheme.

Accreditation is voluntary but the scheme has been designed and will be operated and promoted in such a way as to encourage all reputable operators to become involved.

The Spreadmark scheme is governed by the Fertiliser Quality Council. This Council has representatives from fertiliser user groups, fertiliser applicators and fertiliser manufacturers.

The Spreadmark scheme operates closely with its sister scheme, Fertmark. The two schemes operate to ensure that high quality fertiliser is manufactured, mixed and spread in a way that precision agriculture is fostered and the environment is protected. Both programmes have strong links to the Code of Practice for Fertiliser Use.

This Code is structured in three parts:

- The Spreadmark Operational Rules
- Groundspread Fertiliser Application Practices
- Aerial Fertiliser Application Practices

All copies of the Code will have the Spreadmark Operational Rules section and will have either the Groundspread section or the Aerial section or both, as appropriate to the user.

Neil Barton
Chairman Fertiliser Quality Council

SPREADMARK OPERATIONAL RULES

The section of the Spreadmark Code of Practice contains the Operational Rules that relate to both the aerial application of fertiliser and the groundspread application of fertiliser. Information that relates to Groundspread Fertiliser Application Practices and/or Aerial Fertiliser Application Practices can be found in the sections following this.

2. TABLE OF CONTENTS

3. ACKNOWLEDGEMENTS

The Fertiliser Quality Council gratefully acknowledges the contribution of the following groups - without whose input this scheme would not have been possible:

1. NZ Groundspread Fertilisers Association for creating the original Spreadmark scheme and contributing to its further development.

2. Federated Farmers NZ Inc, and in particular Graham Robertson as inaugural Chairman and Kevin Geddes, for driving the development of this Code.

3. The Fertmark accredited fertiliser companies for contributing funding and for providing inputs during the development of the Code.

4. The Ministry for the Environment for representing the interests of the environment and for providing funding.

5. The Fertiliser Manufacturers' Research Association of NZ (FertResearch) for providing funding and for inputs during the Code's development.

6. The Centre for Precision Agriculture, Massey University and Lincoln Ventures Limited for technical input.

7. The Sustainable Farming Fund of the Ministry of Agriculture and Forestry for providing funding and recognising the value of the programme.

8. Agmardt for providing funding support in the early stages of the Spreadmark project.

9. The NZ Agricultural Aviation Association for contributing funding and for providing inputs during the development of the Code.

4. GLOSSARY OF TERMS

Term	Explanation
Approved Aerial Pattern Test Certificate	This is a report produced by an Approved Spreading Equipment Tester that the fertiliser application equipment has been tested and the track spacing (bout width) required to achieve a CV% of 15 for nitrogenous fertiliser and 25% for all other products has been shown. The report will also include other data collected (see Appendix 6.1)
AVCM Act	The Agricultural Compounds and Veterinary Medicines Act 1997
Bout Width (BW)	The distance between successive passes or runs of an aircraft or ground spread vehicle. See also track spacing
Buffer Zone	The distance between an identified sensitive area and the edge of an area where fertiliser is being applied
Bulk Density (BD)	The weight per unit volume of bulk fertiliser, kg per m^3 or tonnes per m^3 (t/m^3)
CAA	Civil Aviation Authority
CV%	Coefficient of variation. It is the ratio of the standard deviation to the mean and is used to indicate the evenness of spread. A CV% of zero would mean perfectly even spreading
Fertiliser	Any substance that is primarily intended to sustain or increase growth, productivity or quality of plants or animals through application of essential nutrients to the plant or soil. The term fertiliser includes lime and can be in a solid or fluid form. Note that the term nutrient in the Spreadmark Code relates only to those substances that fit the above definition.
GIS	Geographical information system – an “electronic” or computerized map
GPS	Global Positioning System
HSE Act	The Health and Safety in Employment Act 1992

HSNO Act	The Hazardous Substances and New Organisms Act 1996.
MCTOW	Maximum certified take off weight
Micron	A length measurement. I mm = 1000 microns
Nutrient budget	Statement of the total nutrient balance taking into account the starting (nutrient pool) and finishing positions (objective for nutrient status).
Nitrogenous fertiliser	A fertiliser with more than 3.0% total nitrogen.
Nutrient Management Plan	A nutrient management plan (NMP) is a written plan that describes how the major plant nutrients (nitrogen, phosphorous, Sulphur and potassium) are to be managed annually on a particular farm or part of a farm.
NZAAA	New Zealand Agricultural Aviation Association
NZGFA	New Zealand Groundspread Fertilisers Association
Operator	Owner or proprietor of an aerial application company. The operator in many cases is also the pilot. For ground applications the term operator means the driver
OSH	Occupational Safety and Health
Overseer	A computerized system for nutrient budgeting
RMA	The Resource Management Act 1991
SDS	Safety Data Sheet
Sensitive area	Any area where fertiliser should not be applied. Sensitive areas, for example water, wetlands, organic farms (for some fertiliser) may be designated in a Regional Council resource plan
SGN	Size Guide Number – the mean or average particle size, expressed as mm x 100. Eg SGN of 350 = 3.50 mm diameter
Specific gravity	The ratio of the mass of a given volume of a substance to the mass of an equal volume of water. The load (weight) carried by an agricultural aircraft is usually indicated by the volume in the hopper. Some fertilisers which have a high specific gravity (eg suspensions) can lead to overloading

Spreader	Any device or system fitted to the hopper outlet that is designed to increase the spreading width of fertiliser as it is discharged.
Spreadmark Accredited	The application equipment used has been pattern tested and the operator has satisfied the audit requirements for NZAAA Accreditation or Spreadmark Accreditation
Standard Deviation	A statistical term which means a measure of the extent of scatter of sample values about their mean value. About two thirds of sample values will be within one standard deviation on either side of the mean. It is the square root of the sum of the squares of the differences between each of the sample values and the mean value divided by the number of samples minus one.
Suspension fertiliser	The solid fertiliser components have been ground to reduce particle size and mixed with water to form a suspension. Note that the solid particles will settle out of suspension if the particle size is too large. Also note that the specific gravity of the suspension can be higher than solid fertilisers (see SG)
Swath width	The width of a spread pattern from one pass of the aircraft or ground spread vehicle.
UI	Uniformity Index – a ratio of small particles to large particles and indicates the range of particle sizes. A UI of 100 would mean all particles are the same size. For “well granulated” fertilisers (eg DAP) the UI is normally about 50. For fertilisers with a wide range of sizes the UI may be less than 10

5. DOCUMENT CONTROL

All of the documents in the Spreadmark Code of Practice will be controlled. Each document will have a name, version date and page number. The name of each document will be shown on every page. The current version date of each document will be listed in the appropriate Table of Contents of the Code.

Each copy of the Code that is issued will be kept current. In order to do this each copy of the Code will be numbered and a register kept of holders.

Where uncontrolled copies of the Code are made they will be marked 'Uncontrolled Copy' on the front page. All controlled copies will be able to be identified by a coloured stripe across the bottom of the pages.

6. CONSTITUTION

The following document is the official constitution of the Fertiliser Quality Council. It has been lodged with the Registrar of Incorporated Societies. If changed, the amended copy must be lodged.

The Constitution defines the scope, authority and membership of the Fertiliser Quality Council and the Fertiliser Quality Executive Committee. The Executive Committee represents the interests of users and is advised by appointed technical experts. The Council has a wider representation and oversees fees and changes to rules.

CONSTITUTION OF THE FERTILISER QUALITY COUNCIL (INCORPORATED)
A REGISTERED SOCIETY UNDER THE INCORPORATED SOCIETIES ACT 1908

1 NAME

The name of the Society shall be the Fertiliser Quality Council Inc. formerly called Fertmark Society Incorporated, hereinafter referred to as the "Fertiliser Quality Council" or "the Society".

2 OBJECT

The object of the Society is to administer under licence, from the proprietor of the Fertmark certification trademark and the Spreadmark Certification trademark, the certification processes and all matters incidental thereto, for the benefit of the New Zealand agricultural industry.

3 POWERS

The Society shall have the powers of a natural person.

4 MEMBERSHIP

The members are:

- Federated Farmers of New Zealand Inc.[Founder Member]
- Horticulture New Zealand [Inc]
- NZ Institute of Primary Industry Management [Inc]
- New Zealand Groundspread Fertiliser's Association [Inc]
- Aviation Industry Association of New Zealand represented by New Zealand Agricultural Aviation Association
- New Zealand Fertiliser Manufacturers Research Association [Inc]
- The Chairman of the Fertiliser Quality Council.

5 VOTING

5.1 The voting rights of the Society shall be divided into two groups: founder member 4 votes, ordinary members 1 vote each.

5.2 Federated Farmers of New Zealand Inc shall have 4 votes,
Horticulture New Zealand 1 vote;
New Zealand Institute of Primary Industry Management 1 vote;
New Zealand Groundspread Fertiliser's Association 1 vote;
Aviation Industry Assocation of New Zealand, represented by New Zealand Agricultural Aviation Association 1 vote;
New Zealand Fertiliser Manufacturers Research Association 1 vote;
chairman of the Fertiliser Quality Council 1 vote, plus 1 casting vote.

5.3 At AGM's or EGM's, 50% of the members of the Society will form a quorum, provided that one member of the quorum is the representative of the founder member.

6 QUALIFICATION FOR MEMBERSHIP OF THE SOCIETY

6.1 Any person or incorporated group who in the discretion of the Executive Committee [refer to Clause 9] has a sufficient interest in, or is significantly affected by the activities of the Society. The decision of the Executive Committee shall be final.

6.2 A member shall continue to be a member of the Society until such time a notice in writing is given to the Executive Committee of the member's intention to resign.

6.3 A member shall continue to be a member of the Society until such time as the Executive Committee resolves that the member no longer has a sufficient interest in, or is sufficiently affected by, the activities of the Society. No determination shall be made by the Executive Committee unless the member has had no less than 12 days notice of a meeting at which the determination will be made. A member subject to such a process shall have the right to address the Executive Committee at such a meeting. The decision of the Executive Committee shall be final.

7 REVOCATION OF MEMBERSHIP

Any member whose conduct is inimical to the object of the Society shall be expelled by a unanimous vote at a meeting of the Executive Committee. An expulsion order shall not be made unless the member has had no less than 12 days notice of the meeting. A member subject to such processes shall have the

right to address the Executive Committee at such meeting. The decision of the Executive Committee shall be final.

8 MANAGEMENT

8.1 Subject to the direction of the Annual General Meeting, or an Extraordinary General meeting of the Executive of the Society, the management and control of the Society shall be vested in the Executive Committee.

8.2 Annual General Meeting [AGM]. An AGM shall be held within six months of the close of the Society's financial year.

8.3 The AGM of the Society shall elect the Chairman, who must be a user or a representative of users of fertiliser.

8.4 The Chairman shall review the past year's work and submit a report and financial statements duly audited. A financial auditor shall be appointed. The names of representatives of members to the Executive Committee shall be tabled.

8.5 The AGM shall determine the constitution of the Executive Committee for the forthcoming year and shall elect the members to that committee.

9 FERTILISER QUALITY COUNCIL EXECUTIVE COMMITTEE

9.1 Membership of the Executive Committee shall be restricted to representatives of members who are users of fertilisers, and/or persons representing Industry Associations, or persons schooled in the technology of fertiliser and/or fertiliser placement. The AGM of the Society shall have an unfettered discretion to co-opt other persons with the requisite technical knowledge to the Executive Committee as it believes fit.

9.2 A committee member shall hold office for a term of 1 year, at which time the member shall be eligible for reappointment.

9.3 The Executive Committee shall meet at such times and at such places as the Chairman thinks fit.

9.4 The Executive Committee may be convened by notice signed by three committee members and filed with the Executive Director. Within ten working days of receipt of such notice the Executive Director shall advise all Committee members of the date of meeting. Such a meeting shall be held within ten working days of the date of filing of the notice.

9.5 The Executive Committee shall fix the date and venue of the AGM which shall be advised in writing to all members.

9.6 Any vacancy occurring on the Executive Committee may be filled by an appointment made by the Chairman after consultation with the Committee. Such an appointment shall hold office until the close of the next AGM or until a successor has been appointed and accepted office.

9.7 Fifty percent [50%] of the members of the Executive Committee shall form a quorum, provided that one of the quorum represents the Founder Member.

10 FERTILISER QUALITY COUNCIL [FQC COUNCIL]

10.1 There shall be a Council of the Society which shall meet no less than annually, with one meeting being held immediately prior to the Society's AGM.

10.2 All members of the Society shall be members of the FQC Council and all current registered users of the Fertmark and Spreadmark trademarks shall be entitled to attend FQC Council meetings. Such persons or their representatives shall enjoy full speaking rights.

10.3 The FQC Council shall approve such fees schedules as are needed; shall approve the appointment of the Fertmark and Spreadmark auditor, and alterations to the society's constitution, rules and codes and the Council shall review the operation of the Society and make recommendations to the Executive Committee.

11 FINANCIAL YEAR

The financial year of the Society shall end on 30 June.

12 COMMON SEAL

The Executive Director shall be the custodian of the Common Seal which shall be affixed by him/her only on the authority of the Executive Committee to such documents as are signed by the Chairman and the Executive Director or in such other manners as the Executive Committee may decide. A schedule of all documents to which the seal has been fixed shall be tabled at each Executive Committee meeting.

13 CONTROL AND INVESTMENT OF FUNDS.

13.1 All monies received by the Society shall be banked in such banking institutions as the Executive Committee decides upon. Such banking accounts shall be operated upon the authority and signature of the Executive Director or other such officers as appointed by the Executive Committee.

13.2 The Executive Committee shall cause true and fair accounts to be kept of the assets and liabilities of the Society and the annual income and expenditure.

13.3 No member of the society shall receive any distribution, whether by way of money, property, or otherwise howsoever, other than as a reasonable reimbursement for services rendered or money lent to the Society.

14 EXECUTIVE DIRECTOR

An Executive Director shall be appointed by the Chairman after consultation with the Executive Committee on such terms and conditions as determined by the Executive Committee.

15 ALTERATION OF CONSTITUTION OR RULES OF THE SOCIETY AND FERTMARK AND SPREADMARK CODES ("Rules").

15.1 Subject to Rule 10.3, these Rules may be altered, added to, or rescinded by the Annual General Meeting of the Society. Notice of any proposed alteration, addition or rescission shall be given to the Executive Director, not less than 30 days before the date of the Annual General Meeting of the Society. The Executive Director shall forward a copy of the proposed alteration, addition, rescission to each member of the FQC Council no less than 21 days before the Annual General Meeting.

16 LIQUIDATION

16.1 The procedures prescribed in the Incorporated Societies Act 1908 and its Amendments shall be followed in the event that the Society was to wind up.

16.2 In the event of the winding up of the Society, the accumulated funds and property of the Society shall be left as directed by a majority of the members of the Society, but on no account shall funds or property be distributed amongst the members.

17 INTERPRETATION

If at any time any matter should arise which is not provide for in these rules, or in the interpretation of these rules, the same shall be determined where appropriate by the Executive Committee whose decision shall be final.

7. SPREADMARK OPERATIONAL PROCEDURES

This section of the Spreadmark Code of Practice contains the following Spreadmark operational procedures:

7.1 Spreadmark Procedure for Complaints; and

7.2 Spreadmark Disciplinary and Deregistration Procedures.

7.1 SPREADMARK PROCEDURE FOR COMPLAINTS

SCOPE

This is the procedure for the making and resolving of complaints laid by one Spreadmark accredited company against another in respect to an alleged breach of any Spreadmark rule. It is also the procedure for farmers or growers or fertiliser companies who wish to use the Spreadmark Scheme as a means of complaining about poor practice.

COMPLAINTS PROCEDURE WHERE THE COMPLAINANT IS A SPREADMARK ACCREDITED SPREADING COMPANY OR A FERTMARK ACCREDITED COMPANY

1. Before making a formal approach to the Fertiliser Quality Executive Committee (“the Executive Committee") it is expected that the complainant member will have made contact with the company complained against, in an effort to resolve the matter. The complainant company must notify the Executive Director of such action at the time the approach is made. If the Executive Director considers that it may be useful to facilitate a speedy resolution to a potential complaint the Executive Director may alert the Spreadmark Auditor or the Executive Committee or an Expert Panel to the potential for a complaint developing or may convene either group for advice.

   If the two companies resolve the issue the Executive Director must be informed so that there can be verification that the conditions agreed to are in compliance with Spreadmark policy.

2. When placing a complaint before the Executive Director, the written submission from the complainant should define the clauses of the Spreadmark Rules considered to be breached, and advise measures taken to resolve the matter with the defendant company.

3. On receipt of the complaint, the Executive Director (or their nominee) will seek to arrange a mediation meeting of the parties in an endeavour to reach a resolution within a period of no more than 20 working days.

4. If the mediation meeting called by the Executive Director is declined or fails to settle the complaint, the Executive Director (or their nominee) may present the case for resolution to the Executive Committee in accordance with the Spreadmark Disciplinary Procedures and within 10 working days of the mediation failing.

5. Any costs incurred in this Complaints Procedure will lie where they fall.

COMPLAINTS PROCEDURE FOR FARMERS AND GROWERS AGAINST A SPREADMARK ACCREDITED COMPANY

1. Before making a formal approach to the Fertiliser Quality Executive Committee ("The Executive Committee") it is expected that the complainant will have made contact with the company being complained against, in an effort to resolve the matter.

2. To be considered, complaints by farmers or growers must be in writing and should advise measures taken to resolve the matter with the defendant company.

3. On receipt of the complaint, the Executive Director (or their nominee) will seek to arrange a mediation meeting of the parties in an endeavour to reach a resolution within a period of no more than 20 working days.

4. If the mediation meeting called by the Executive Director is declined or fails to settle the complaint, the Executive Director (or their nominee) may present the case for resolution to the Executive Committee in accordance with the Spreadmark Disciplinary Procedures. The Executive Director may also choose to seek independent advice as to the likely validity of any complaint.

5. Any costs incurred in this Complaints Procedure will lie where they fall. Before costs are incurred by the Expert Committee or the Auditor it will have been decided who is paying them.

7.2 SPREADMARK DISCIPLINARY AND DEREGISTRATION PROCEDURE

SCOPE

This is the procedure for the proper resolution of issues which may lead to sanctions being applied to a Spreadmark accredited company.

DISCIPLINARY PROCEDURES

1. The sanctions that the Fertiliser Quality Executive Committee ("the Executive Committee") may apply to members for serious breaches of the Spreadmark Rules are public statements and expulsion. These sanctions can be applied where there are clear and serious breaches of the Spreadmark Rules which are sufficient to damage the integrity of Spreadmark or to mislead fertiliser users.

2. Where, in the opinion of the Executive Director, there is a clear and serious breach of the Rules, the Executive Director may convene a meeting of the Executive Committee and advise the relevant company that this action has been taken. The Executive Director may also commission an investigation by the Auditor.

3. The Executive Committee will consider such written material as is supplied and will decide on an appropriate course of action. The meeting may be held by a physical meeting or by teleconference and shall be held within 10 working days of the Executive Director deciding there is a clear and serious breach.

4. If the Executive Committee considers that there are matters of a technical nature to be resolved, these may be referred to an Expert Group for an opinion. Where this occurs, the convenor of the Expert Group shall be one of the members of the Executive Committee who have been co-opted onto the Committee for their technical expertise. The Expert Group shall report to the Executive Committee within 20 working days of the matter being referred to it.

5. When the Executive Committee has reached a decision the affected parties will be advised.

6. If the Executive Committee proposes to make a public statement the offending member shall be advised in writing by registered mail and by fax of the proposed publicity and be given a period of five working days to respond. The five days will be from the date of receipt of the registered letter which will be deemed to be two working days after its dispatch. The response will be considered by the Executive Committee before it issues its public statement.

7. If the Executive Committee considers that there has been a breach of the Spreadmark Rules it may begin the process for withdrawing accreditation of that company. In doing so it will follow the rules outlined in the Deregistration Procedure which follows.

8. Any costs incurred in this Disciplinary Procedure will lie where they fall.

DEREGISTRATION

1. The Spreadmark accreditation of a fertiliser spreading company may be withdrawn by the Fertiliser Quality Executive Committee when any of the conditions outlined below are met:

   - The fertiliser spreading company operating systems do not meet the Spreadmark System Standard as determined by the Spreadmark Auditor and the company and the breach has not been remedied within the specified time, or

   - A complaint has been made in respect to a breach of the Code of Conduct and such complaint has been upheld by either the Advertising Standards Complaints Board or the Executive Committee and the breach has not been remedied within the specified time, or

   - The fertiliser spreading company defaults in paying the requisite promotion and administration or audit fees and remains in default after the expiration of the due notice period.

2. The decisions of the Fertiliser Quality Executive Committee on matters of deregistration shall be final.

8. SPREADMARK PROTOCOLS

This section of the Spreadmark Code of Practice contains the following protocols:

8.1 Spreadmark Confidentiality Protocol;

8.2 Spreadmark Promotional & Administrative Levy Policy.

8.1 SPREADMARK CONFIDENTIALITY PROTOCOL

SCOPE

This protocol relates to the protection of information relating to fertiliser spreading companies which have applied for or gained Spreadmark accreditation.

CONFIDENTIALITY OF INFORMATION

1. After an application for Spreadmark registration is made by any company the details of the application will only be known to the Executive Director and the Auditor. The identity of the company will not be made available to any other party unless expressly allowed by the applicant company.

2. If any company fails to gain accreditation that information and the reasons for the failure to register will not be made public. No other party will have access to that information, being the name of the company or the reasons for accreditation being declined.

3. If a fertiliser spreading company receives accreditation, then the Executive Director will publicly declare that the company is accredited.

4. All information and data collected from a company by the Auditor in carrying out the obligations to Spreadmark is confidential to that company and the Auditor apart from the following exceptions:

    - The normal recommendations from the Auditor to the Executive Committee about accreditations, deregistrations, and amendments.

    - Requests from the Executive Director (and privy only to the Executive Director) to the Auditor for information needed for the efficient functioning of the Spreadmark scheme. Such requests will generally be sought only in the following circumstances:

        (a) when a company is not meeting the requirements of Spreadmark accreditation as advised by the Auditor;
        (b) when there is controversy or confusion; or
        (c) when general operational matters are under review.

5. All information held by the Auditor relating to a company is available to that company.

6. If a fertiliser spreading company chooses to withdraw from the Spreadmark accreditation scheme then the Fertiliser Quality Executive Committee reserves the right to make it publicly known that the company no longer holds Spreadmark accreditation.

7. If the fertiliser spreading company is deregistered by the Fertiliser Quality Executive Committee then this committee reserves the right to make it publicly known that the company no longer holds Spreadmark accreditation

and also to make publicly known the reasons why that accreditation is no longer held.

8.2 SPREADMARK PROMOTIONAL & ADMINISTRATIVE LEVY

SCOPE

This policy describes the collection and utilisation of the Spreadmark promotional and administrative levy.

LEVY POLICY

1. The Spreadmark promotional and administrative budget will be set by the Fertiliser Quality Council on an annual basis as part of the setting of the Spreadmark budget.

2. Once the Spreadmark promotional and administrative budget is set this will be used to determine the Spreadmark promotional levy.

3. If the levy collected is greater than that required to operate on a break-even basis, then the accredited fertiliser spreading companies will have the surplus credited to them on a pro rata basis for the following year.

4. The promotional and administrative levy will be invoiced annually.

9. SPREADMARK CODES OF CONDUCT

Codes of Conduct:

9.1 Spreadmark Code of Conduct for Advertising and Promotion

9.1 SPREADMARK CODE OF CONDUCT FOR ADVERTISING AND PROMOTION

SCOPE

This is the Code of Conduct for the behaviour of fertiliser spreading companies with respect to advertising and promotion.

CODE OF CONDUCT

1. Compliance with this Code of Conduct is a condition of ongoing accreditation with the Spreadmark Scheme.

2. It is necessary for members, operating as they do in a keenly competitive industry, to draw attention to the existence and nature of their services by the use of advertising and other promotional measures. It follows that the marketing methods employed should be centred on the provision of standards of ethics and be in good taste. These precepts are embodied in the detailed provisions of the Code as set out hereunder.

3. The Code owes its origin to the determination of the scheme to secure the acceptance and adoption of high standards of conduct in the spreading and application of fertiliser.

4. This Code will be administered by the Fertiliser Quality Executive Committee. Complaints by one member against another for alleged breaches of this Code of Conduct will follow the Spreadmark Procedure for Complaints, outlined in the Spreadmark Operational Rules part of this Code.

5. The Code will be kept under constant review and amended from time to time where necessary to clarify it and bring it up to date. Notes for the guidance of member companies will be issued periodically to keep them informed of the rulings and recommendations of the Executive and of any alterations to the Code.

6. Membership of the scheme entitles companies to use the Spreadmark logo in appropriate ways.

7. Services must not be marketed with any direct or indirect reference to Spreadmark unless it complies with all relevant statutory legislation and Spreadmark requirements.

8. When fertiliser spreading companies use spreading equipment that does not have a current Spreadmark test certificate, or use operators that do not have a current Spreadmark training certificate, there must be no suggestion in any marketing or other information that the company's Spreadmark accreditation covers such machinery or operators.

9. Methods of marketing must never be such as to invite unfavourable comment or bring discredit upon either the fertiliser manufacturing or spreading industries or upon other Spreadmark accredited companies.

10. The products, services or personnel of other Spreadmark accredited companies shall not be disparaged, either directly or by implication.

11. Information furnished must be accurate and balanced and must not be misleading, either directly or by implication.

12. All claims and/or comparisons, whether written or verbal, as representation or as advertisement, shall abide by the Advertising Standards Authority Code of Practice. In addition, comparisons must be factual, fair and capable of substantiation. In presenting a comparison, care must be taken to ensure that it does not mislead by distortion, by undue emphasis or in any other way.

13. Any complaint regarding advertising by a Spreadmark accredited company may be referred to the Advertising Standards Authority or to the Fertiliser Quality Executive Committee.

14. Advertisements must be clearly distinguishable from editorial material, where there could be doubt, the word “advertisement” is required.

15. Promotional material should not imitate the devices, slogans or general layout adopted by other companies in a way that is likely to mislead or confuse.

16. Advertisements which make use of scientific data should clearly state the source of that data, which must not be used out of context or in such a manner that does not accurately reflect or portray the overall conclusions of that research. Wherever possible, previously unpublished data, including verbal communications on a subject, may not be used for advertising purposes unless specific written consent is obtained from the originating organisations, or the individual(s) concerned, after they have viewed the advertisement in question.

10. REFERENCE MATERIAL

The following material is provided to support Spreadmark accredited companies:

- The Sieve Box

THE SIEVE BOX

1. PURPOSE:

The purpose of a sieve box is to get an objective measure of the distribution of particle sizes in a sample of fertiliser.

The distribution of particle sizes along with the bulk density – are important to fertiliser spreaders as these characteristics affect spreading performance. The mean particle size (expressed as a Size Guide Number – SGN), the range of particle sizes (expressed as a uniformity Index – UI) and the bulk density (BD) are the three most important physical characteristics for spreaders. For more information of these characteristics, see the Definitions part of this Code.

Sieve boxes work by separating the fertiliser into different size categories so that the SGN (average particles size) and UI (representing the range of particle sizes) can be estimated or calculated.

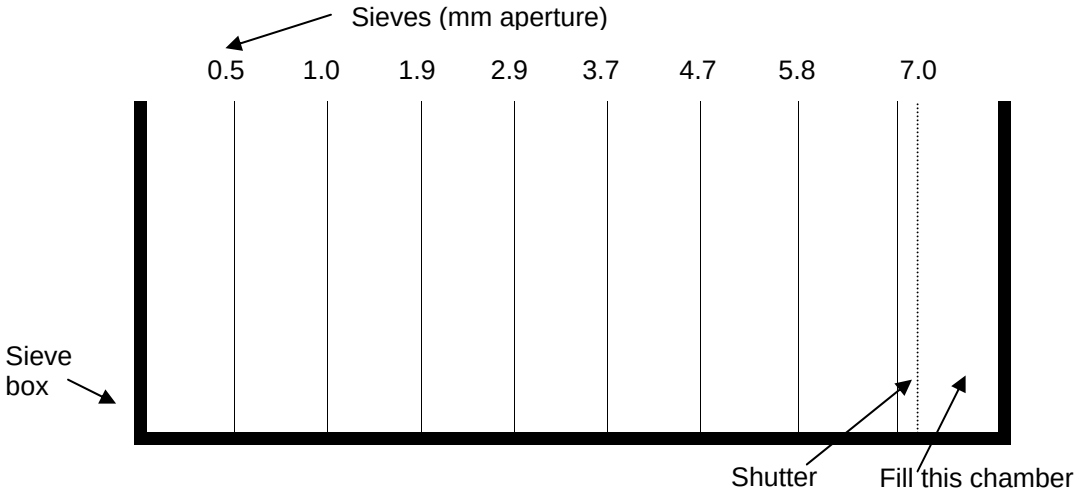
2. DESCRIPTION

The standard Fertiliser Quality Council sieve box has the following dimensions and sieve sizes:

- Inner Dimensions 155mm x 60mm x 25mm
- Sieve Sizes (mm, actual aperture) 0.5, 1.0, 1.9, 2.9, 3.7, 4.7, 5.8, 7.0.

3. USE OF THE SIEVE BOX

1. Make sure all sieve chambers are empty.
2. With the coarsest (7mm) screen to the right, place the shutter against the 7mm screen as shown, then fill the right hand column, tapping the box gently to settle the fertiliser. Screed off the surplus fertiliser, then withdraw the shutter.

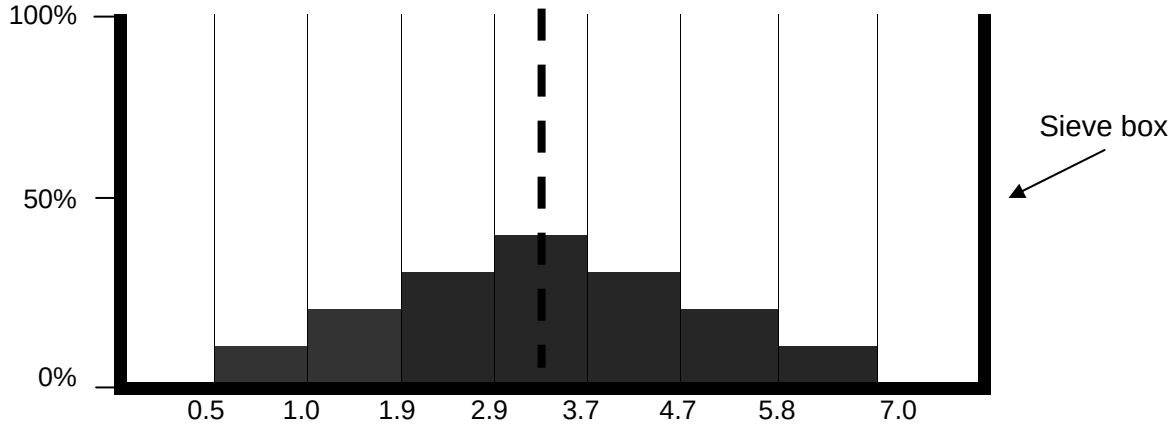


3. Put the top on the sieve box, then turn the box so the filled chamber is uppermost, and shake the sieve box gently for about 10 seconds.
4. Turn the sieve box upright again and gently tap it so the levels in each column are level.
5. Read off the % level in each column.
6. Estimate the SGN and UI values using the notes below.

4. ESTIMATING SGN AND UI

4.1 Estimating SGN

Estimating SGN from amounts retained in the sieve box.



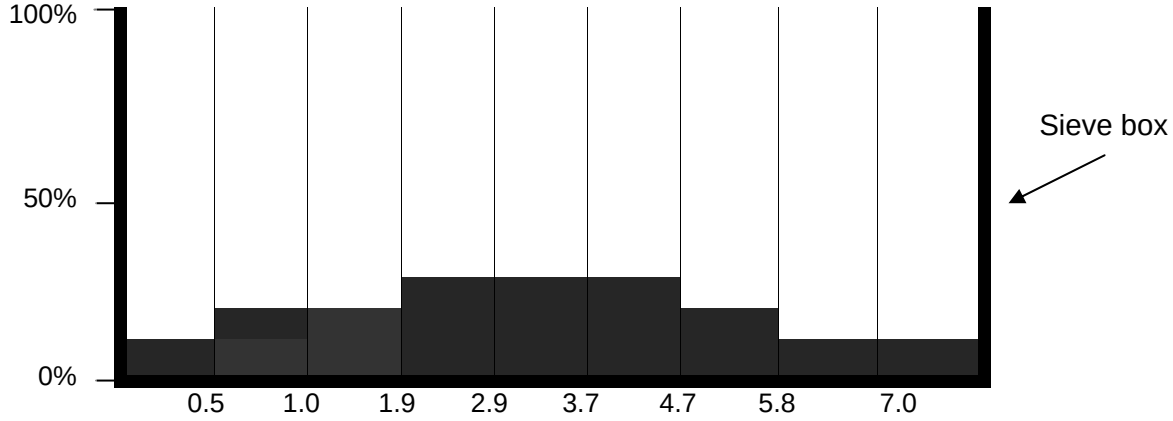
The diagram shows the amounts retained in each chamber after sieving. To estimate SGN the shaded area to the left of the imaginary dotted line must equal the shaded area to the right. In this case the line has been drawn so that these areas are equal, and the line meets the bottom scale at about 3.3. The SGN = 3.3 or 330

4.2 Estimating UI

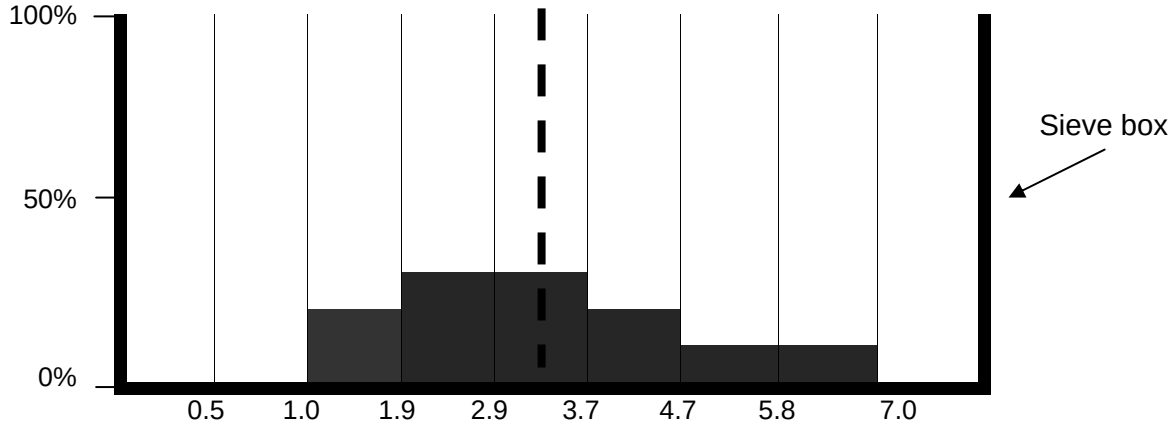
It is more difficult to estimate UI as accurately as SGN. The more chambers that have some material retained in them the lower the UI value will be. If for example, all the material is retained in only two chambers then the UI will be high – probably about 55 or 60. In the above example the UI is 18. There are some rough guides that can be used to help estimate UI. These include:

- If each chamber has more than 5% then the UI will be less than 20
- If any two adjacent chambers in the sieve box add to more than 70% then the UI will be greater than 30
- If any two chambers add to more than 80% then the UI will be more than 50.

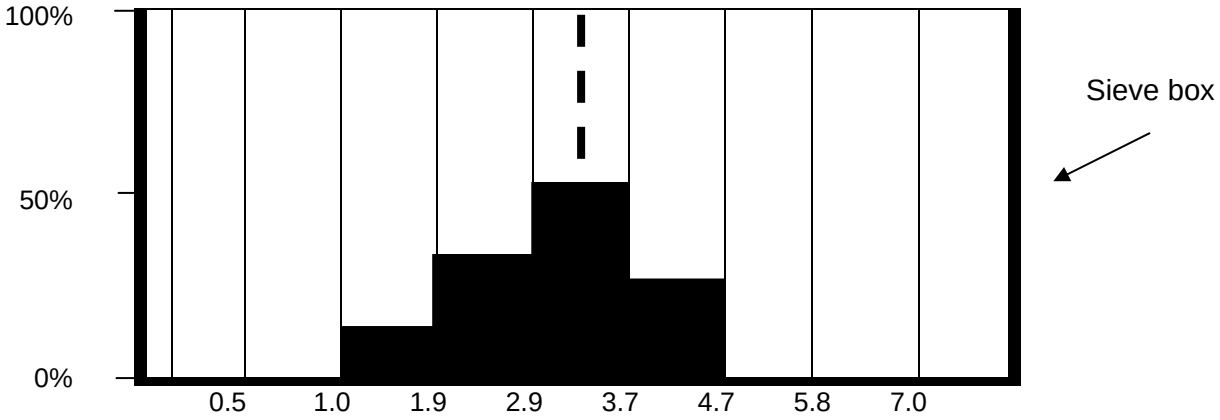
The figures below show three samples with the same SGN but different UI.



Sample A SGN = 300, UI = 11



Sample B SGN = 300, UI = 38



Sample C SGN = 300, UI = 56

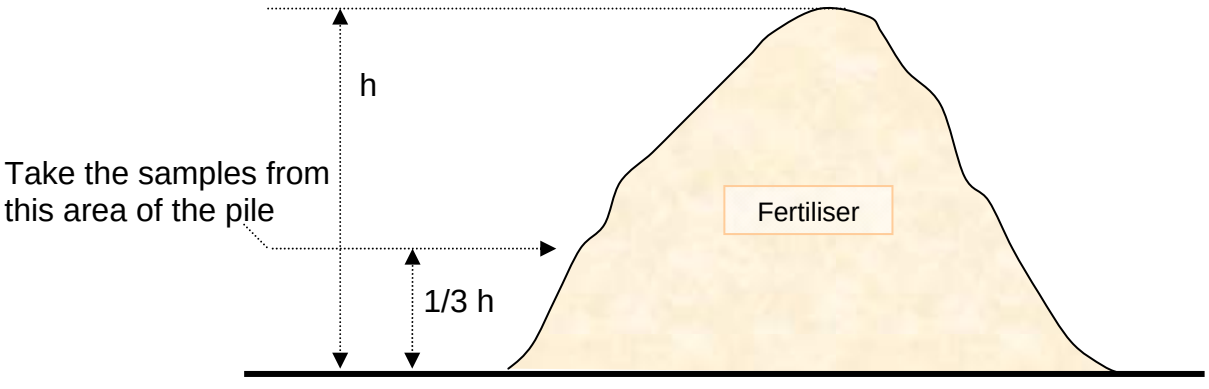
5. SAMPLING

Obtaining a representative sample of fertiliser is important when information on SGN and UI is being obtained. When fertiliser is tipped into a pile all the large particles tend to fall to the outside edge and bottom of the heap. A sample taken from that area would not be typical in terms of particle size or size range.

The best sampling method is to use a sampling spear. As this is pushed into the heap of fertiliser it collects and retains a sample of fertiliser that will more closely represent the whole heap. A sampling spear that retains a sample that is less than or equal to the volume required to fill the sieve box chamber should be used. If it is less than the sieve box chamber volume then repeated samples are taken until the sieve box chamber is full.

In all cases the sample should not be taken from the lower part of the pile of fertiliser – at least 1 metre from the bottom of the pile is a good guide.

- The best sampling procedure is to use the sampling spear and repeat the sample/sieve procedure three times. Drive the spear in horizontally.
- The next best option is to take one sample with the spear then use the sieve box.
- If a spear is not available, samples should be taken about one third up from the bottom of the pile as shown in the figure below. Dig into the pile a little to avoid taking material from the outside of the heap. Fill the sieve box chamber with several small handfuls. Do not use a shovel to take the sample then tip from the shovel onto the sieve box as this will give a biased sample because the large particles will flow into the box first.



6. USE OF SGN AND UI VALUES FOR EVEN SPREADING

NZ fertiliser products have a range of 95 – 475 for SGN values and 5 – 68 for UI values so there is a wide variation. Some simple guidelines are given here to help make use of SGN and UI data. In the past SGN and UI data have not

routinely been obtained for NZ fertiliser products, so it is important to refine these guidelines for NZ conditions and equipment.

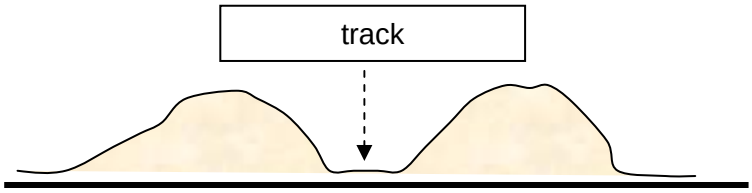
The actual test products used during Spreadmark Certification should be sampled and tested. The measurement of the particle size of the product and the spreading results from the distribution test will form a series of benchmarks of spreader performance. (The SGN and UI of the product will be given on the Spreadmark Certificate).

The three main guidelines are:

- If the SGN is lower than 150 and the UI less than 20 it will be more difficult to get an accurate distribution (Fine product).
- If the SGN is between 250 and 350 and the UI between 20 and 60 then even spreading can be achieved provided the spreader is set correctly. (Medium product).
- Where the SGN is 350+ and the UI is 50+ even spreading becomes more difficult and there is an increased risk of crop damage. (Coarse product).

These are guidelines only. The three categories given here could be seen as fine, medium and coarse in terms of SGN. Some generalisations are possible.

- Higher SGN values suggest wider swath widths are possible.
- High UI values, i.e., more uniform particle sizes (for any SGN) tend to give a "hollow" transverse spread pattern with many powered spreaders.



- Fine material can be spread evenly but it depends on the machine and the weather.
- Coarse material can also be spread evenly but it depends on machine design.
- An even spread with material classed as medium should be possible.

7. USE OF SGN AND UI VALUES FOR BLENDING FERTILISERS.

NZ fertiliser products have a wide range of physical properties and these properties affect the ease with which they can be blended and the degree to which they tend to segregate.

All spreading companies spread blends of fertiliser and some prepare their own blends. The information below is intended to indicate the degree to which blending is likely to be effective.

The compatibility of blend constituents depends on both SGN and UI. The available data suggests the following guidelines:

Difference between SGN or UI values	Compatibility for blending
Less than 10	Good compatibility
11 – 20	Moderate compatibility – some segregation likely
Greater than 20	Incompatible

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GROUNDSPREAD FERTILISER APPLICATION PRACTICES

The section of the Spreadmark Code of Practice contains the rules that relate to Groundspread Fertiliser Application Practices.

TABLE OF CONTENTS

1. SPREADMARK SYSTEM STANDARD

This section of the Spreadmark Code of Practice relates to the Spreadmark System Standard and contains the Spreadmark Internal Audit Checklist.

It contains the following material:

1.1 Spreadmark System Standard for Groundspread Companies
1.2 Internal Audit Checklist
1.3 Spreadmark Groundspread Environmental Code
1.4 Spreadmark Auditor Protocol for Groundspread Companies
1.5 Spreading Equipment Testers Protocol
1.6 Transitional Arrangements

1.1 SPREADMARK SYSTEM STANDARD FOR GROUNDSPREAD COMPANIES

SCOPE

This is the quality management standard that will be used by the Auditor to assess the degree to which the fertiliser spreading company's management system works to ensure that customer needs and Spreadmark standards are reliably met.

STANDARD

1. MANAGEMENT

1.1 The fertiliser spreading company must have a documented system, appropriate for their size, which shows how farmer/grower requirements are communicated and reliably delivered.

1.2 The company must designate someone to have overall responsibility for quality assurance.

1.3 Proper records must be kept of orders and deliveries.

2. CUSTOMER NEEDS

2.1 There must be a way of recording customer orders completely.

2.2 There must be a way of reliably communicating customer orders to appropriate staff.

2.3 Records of orders delivered must be recorded so that reconciliations between individual orders and deliveries can be made.

3. ENVIRONMENTAL CONCERNS

3.1 Fertiliser spreading companies must have an acceptable written environmental care policy (see also the Spreadmark Groundspread Environmental Code of this Code of Practice).

3.2 Companies must follow their environmental care policy.

4. SPREADING EQUIPMENT

4.1 Only equipment with a current Spreadmark Spreader Performance Certificate will be used on jobs where a Spreadmark accreditation has been requested or specified. In addition, either all fertiliser spreading equipment in the company will hold a current Spreadmark Spreader Performance Certificate or there will be a system in place to ensure that non-certified equipment is not used for jobs where Spreadmark accreditation has been requested or specified.

4.2 Spreadmark Spreaders will be checked annually. There are a number of different ways that this can be done. Options include all or some of the following:

- using Approved Spreading Equipment Testers annually.
- using Approved Spreading Equipment Testers on a two–yearly basis and competent person checking the performance of the spreader between Approved Tests, or
- using the self–checking system described in Section 4.9 below.

In order to be considered as Spreadmark Certified Spreaders, machinery will either:

- hold a Spreadmark Spreader Performance Certificate that is less than one year old, or
- hold a Spreadmark Spreader Performance Certificate that is less than two years old and which has also been checked by the company.

4.3 The substantial majority of the spreaders in a Spreadmark accredited fertiliser spreading company will hold a current Spreader Performance Certificate. When auditing this requirement due recognition will be made of machines where it is reasonable that they not be certified (eg new spreaders which have not yet been tested and specialised orchard machines).

4.4 Spreading machinery must operate at a bout width that is within the limits that are defined by its Spreadmark Test Certificate for the fertiliser being spread.

4.5 All fertiliser spreaders will be provided with a suitable sieve box for testing fertiliser.

4.6 All fertiliser spreaders should have a Spreader Maintenance Diary which records significant maintenance and repair work which could affect the machine's fertiliser spreading capability. It should also record the results of the subsequent spreading pattern checks on that machine.

4.7 Where the fertiliser spreading company has an acceptable system in place for the regular checking of fertiliser spreading capability, the Auditor shall review this.

4.8 Written records shall be kept of all spreading equipment checks and calibrations.

4.9 Where the company has a Spreadmark Type Approved Spreader, or has spreaders with a demonstrably repeatable performance (i.e. internal company checking shows that the spreader continues to

perform consistently to an external calibration check over a sustained period) and where there is appropriate evidence of maintenance and on-going checking of the spread pattern, then the Spreader Performance Certificate issued by the manufacturer/importer (in the case of Spreadmark Type Approved Machines) or by the Approved Spreading Equipment Tester, may have the term of its certificate extended for up to two years at a time by the Spreadmark auditor.

4.10 Spreaders with Spreadmark Certification shall be clearly identified as such and shall carry a copy of their current Spreadmark Spreader Performance Certificate.

5. OPERATORS

5.1 All fertiliser spreading equipment operators shall be competent. There will be training records for each person, signed by a person competent to do so, that record that that person is competent to do the tasks that are assigned to them.

5.2 In addition, either all fertiliser spreading equipment operators in the company will hold a current Spreadmark training certificate or there will be a system in place to ensure that operators who do not hold a current training certificate are not used for jobs where Spreadmark accreditation has been requested or offered.

5.3 Records shall be kept of operator training.

6. WORK INSTRUCTIONS

6.1 Fertiliser spreader operators must be provided with appropriate written Work Instructions which detail how all significant facets of the standard tasks involved in fertiliser spreading are done.

6.2 Operator Work Instructions may include information on fertiliser testing with a sieve box, interpretation of the resulting information, using this information to decide on the optimal settings for the spreader and on adjusting spreading machinery.

7. CUSTOMER COMPLAINTS

7.1 The company must have a written procedure for investigating and resolving customer complaints so as to identify the real cause of any problem.

7.2 The company must follow its customer complaints procedure.

8. INTERNAL AUDIT

8.1 The company must conduct an internal audit of its systems to ensure that they remain sound. This audit will be done in the interval between

Spreadmark audits. A specimen internal audit checklist can be found at the end of this section.

8.2 Records will be kept of internal audits.

1.2 SPREADMARK INTERNAL AUDIT CHECKLIST

Purpose

The purpose of this checklist is to guide the company internal auditor to ensure that the Spreadmark Quality System continues to operate effectively.

Note that the Code References are to the Spreadmark System Standard for Groundspread Companies.

Checklist

Code Ref	Question	Complied with?
1.2	Is the person with overall responsibility for quality assurance still the person shown in the Quality Manual?	
1.3 & 2.1	Are we still keeping proper records or orders and deliveries?	
2.2	Is the method that we use to communicate customer orders to drivers still appropriate?	
2.3	Are reconciliations between orders and deliveries still able to be made?	
3.1	Is our environmental care policy still current?	
3.1	Are we still taking care to ensure that fertilisers are not being spread or blown into waterways?	
3.1	Are our loads still covered when on public roads?	
3.1	Is spreader washdown still being done under controlled conditions?	
4.1	Are enough of our spreaders still certified?	
4.3	Are our spreaders still operating within the bout width limits defined by their Spreadmark test certificates?	
4.4	Are we still keeping records of spreader checks and calibrations?	
4.5	Are our certified spreaders still identified as such?	
5.1 & 5.3	Are our spreader operators still competent?	
5.2	Do enough of our spreader operators still hold a current Spreadmark training certificate?	
6.1 & 6.2	Is the written guideline material provided for the drivers still up-to-date?	

Signed …….. Date ……..

1.3 SPREADMARK GROUNDSPREAD ENVIRONMENTAL CODE

SCOPE

This is the Environmental Code of Conduct for groundspread fertiliser companies operating within the Spreadmark programme. Fertiliser spreading company environmental care policies and practices, as required by the Spreadmark System Standard, must comply with this Environmental Code.

The application of fertiliser to agricultural land is an activity of profound economic importance but which has the potential to inadvertently cause environmental damage. For this reason, fertiliser spreading companies must comply with good environmental care practices in all parts of their operations.

ENVIRONMENTAL CODE

1. All fertiliser shall be handled, stored and applied in accordance with the Code of Practice for Fertiliser Use – in particular, Part 5 “Fertiliser Application” and Part 6 “Handling Fertilisers”.

2. Care will be taken to prevent fertiliser being spread or blown into waterways.

3. Spreaders will not operate on soils that are so wet that serious soil damage or runoff risks are produced.

4. Spillages of fertiliser are to be avoided. If spillages occur they are to be cleaned up in a way that minimises environmental damage and complies with such legal requirements that apply.

5. When on public roads all loads will be covered, whether empty or full, to prevent fertiliser dust blowing over following vehicles or on to roads.

6. The wash down of spreaders will be done under controlled conditions and with measures in place to prevent wash water flowing into water ways.

7. A safety data sheet (SDS) for the fertiliser being carried should be available within the company.

1.4 SPREADMARK AUDITOR PROTOCOL FOR GROUNDSPREAD COMPANIES

1. SCOPE

This protocol sets out the roles and responsibilities of the Auditor for the fertiliser groundspreading industry.

2. APPOINTMENT

2.1 The Auditor shall be nominated by the Fertiliser Quality Executive Committee, and that appointment shall be approved by the Fertiliser Quality Council, for such a term as the Executive Committee shall determine. This decision will be taken in consultation with the NZGFA.

2.2 The Auditor shall have received appropriate auditor training and shall be familiar with the fertiliser spreading industry.

2.3 The Auditor cannot also be a Spreading Equipment Tester as it is important that the functions of the certification testing of equipment and auditing be kept entirely separate.

3. COMPANY CONTACTS

3.1 The Auditor will maintain a register of fertiliser spreading companies and nominated company contact people. The nominated company contact people are to be the primary points of contact for the Auditor with the company.

4. NOTIFICATION

4.1 The Auditor will be notified by the Executive Director each time a valid application for Spreadmark company accreditation is received.

4.2 The Auditor will negotiate with the applicant fertiliser spreading company contact person for a suitable time to conduct the audit.

5. AUDITS

5.1 During audits the Auditor will assess the fertiliser spreading company quality system and records. The standard used for the audit will be the Spreadmark System Standard. The audit will focus on outcomes and evaluate whether or not they are being achieved.

5.2 During each audit the Auditor will examine the fertiliser spreading companies own spreading machinery test system and records to determine their effectiveness. Where companies have spreaders which have a current Spreader Performance Certificate and which have a demonstrably repeatable performance (i.e. internal company

checking shows the spreader continues to perform consistently to the external calibration check over a sustained period) and where there is appropriate evidence of maintenance and on-going checking of the spread pattern, then the Spreader Performance Certificate issued by the manufacturer/importer (in the case of Spreadmark Type Approved machines) or by the Approved Spreading Equipment Tester, may have the term of its certificate extended for up to two years at a time.

5.3 After the site audit is complete a recommendation as to the suitability of the fertiliser spreading company for Spreadmark accreditation will be sent to the Executive Director.

5.4 A site audit report will be sent to the nominated company contact person. It will include a copy of the recommendation as to the suitability of the company systems for Spreadmark accreditation sent to the Executive Director.

6. AUDIT FREQUENCY

6.1 Spreadmark audits will normally be carried out on a two–yearly basis from the date of accreditation.

6.2 The Auditor may determine that an increased audit frequency is appropriate if there are non-conformances or complaints against the company are sustained.

7. STATUS REPORT

7.1 The Auditor will maintain a status report showing the current status of each accredited company, when it is next due to be audited and any current issues that relate to it.

7.2 The status report shall be supplied to the Executive Director every six months or within ten working days of it being requested.

8. RECORDS

8.1 The Auditor shall maintain proper records. These records will include audit reports, status reports and correspondence.

8.2 Records, or copies of records, shall be supplied to the Executive Director upon request and in accordance with the Spreadmark Confidentiality Protocol.

9. CONFIDENTIALITY

9.1 The Auditor will not communicate information about any fertiliser spreading company to anyone other than the company itself through its nominated contact person or the Executive Director. Requests for information are to be referred to the Executive Director.

9.2 All information held by the Auditor on a company is to be made available to that company on request by the nominated company

contact person.

9.3 For further information refer to the Spreadmark Confidentiality Protocol.

1.5 SPREADING EQUIPMENT TESTERS PROTOCOL

1. SCOPE

1.1 This protocol sets out the role and responsibilities of Spreadmark Approved Spreading Equipment Testers.

2. APPROVAL POLICIES

2.1 Spreadmark Approved Spreading Equipment Testers shall be approved by the Fertiliser Quality Council Executive Committee.

2.2 The term of approval shall be for a term of two years or any other lesser term that the Fertiliser Quality Council Executive Committee determines.

2.3 Spreadmark Approved Spreading Equipment Testers will be appropriately qualified and will be able to display practical experience within the fertiliser spreading industry.

2.4 The certification of a Spreadmark tester will be held in the name of the person certified by the Spreadmark auditor. In the case of a person who transfers to another company, the transfer of the Spreadmark tester certification will be subject to the Spreadmark auditor being satisfied that the testing equipment meets the technical specifications of the Spreadmark Approved Spreading Equipment Tests. All applications to alter the terms of a Spreadmark Approved Equipment Tester's certification must be made in the first instance to the Executive Director.

2.5 A Spreadmark Approved Spreading Equipment Tester will be a fit and proper person capable of managing spreader equipment testing, but who is also able to maintain the integrity of the Spreadmark Spreading Equipment Testing process.

2.6 An Approved Spreadmark Spreading Equipment Tester must not do anything inimical to the interests of the Spreadmark scheme. Any complaint about an approved Spreadmark Spreading Equipment tester must in the first instance be made to the Executive Director for resolution.

3. APPROVAL PROCESSES

3.1 Upon receipt of a request to become a Spreadmark Approved Spreading Equipment Tester the Executive Director will forward the application to the Spreadmark auditor who will, without undue delay, contact the applicant to arrange a suitable time for an audit of their

equipment, processes and software to evaluate whether or not they comply with the requirements of this Code.

3.2 The auditor shall report their findings and recommendations to the Executive Director who will seek approval from the Executive Committee for the applicant to be added to the register. Upon approval by the Executive Committee the applicant will be advised that they are able to carry out fertiliser spreading machinery testing and certification for the Spreadmark programme and that their name will be added to the register of Approved Spreading Equipment Testers.

4. SPREADER COMPANY CONTACTS

4.1 The Executive Director shall make available the list of Spreadmark Approved Spreading Equipment Testers to all Spreadmark accredited companies and to spreading companies that have applied to the Executive Director for Spreadmark accreditation. All Spreadmark Approved Spreading Equipment Testers shall offer Spreadmark testing services to all Spreadmark accredited companies or companies seeking Spreadmark accreditation.

4.2 Spreadmark accredited or registered companies may select the services of any Spreadmark Approved Spreading Equipment Tester at a testing fee to be fixed between the parties.

5. SPREADMARK SPREADING EQUIPMENT TESTING

5.1 All testing done by Spreadmark Approved Spreading Equipment Testers for Spreadmark purposes will be done in accordance with the current Spreadmark Code of Practice test standard.

5.2 All Spreadmark Spreader Performance Certificates will be of a form approved by the Spreadmark Executive Director.

5.3 Spreadmark Approved Spreading Equipment Testers will only generate certificates with the Spreadmark name or logo on them for fertiliser spreading companies which hold, or which have applied to hold Spreadmark company accreditation.

5.4 Spreadmark Approved Spreading Equipment Testers will, on request and without fee, provide spreader test data to the Executive Director if the information is sought for research purposes or to resolve disputes.

6. FERTILISER QUALITY COUNCIL EXECUTIVE DIRECTOR

6.1 Immediately following Spreadmark spreader equipment testing, the Spreadmark Approved Spreading Equipment Tester will forward the

completed Spreadmark Spreader Performance Certificate to the Executive Director with a recommendation to the Executive Director about the issuing of a Spreadmark Spreader Performance Certificate.

6.2 The Fertiliser Quality Council Executive Director shall then issue the applicant with a Spreadmark Spreader Performance Certificate unless there are any other circumstances that may be taken into account.

6.3 The Executive Director will only issue Spreadmark Spreader Performance Certificates to fertiliser spreading companies which hold, or which have applied to hold, Spreadmark company accreditation.

7. AUDITS

7.1 The Spreadmark Approved Spreading Equipment Tester shall be subject to regular audit by the Spreadmark auditor. The audit will be to determine that the standards specified in the Spreadmark Code of Practice are being maintained. The Spreadmark auditor will make available the results of the audit to the Fertiliser Quality Council Executive Director.

7.2 If in the opinion of the Spreadmark auditor the Spreadmark approved specifications are not being met, the Executive Director will require the Spreadmark Approved Spreading Equipment Tester to provide an explanation within ten days. If the matter cannot be resolved the Executive Director may suspend the Spreadmark Approved Spreading Equipment Tester from Spreadmark testing.

7.3 The Spreadmark auditor may be asked to conduct an audit of the Spreadmark Approved Spreading Equipment Tester if requested by the Executive Director following any complaint.

7.4 In all matters in dispute the decision of the Executive of the Fertiliser Quality Council will be binding on the parties.

8. DISPUTES

8.1 Disputes that may arise between Spreadmark accredited or applicant companies and Spreadmark Approved Spreading Equipment Testers shall be managed according to the Spreadmark Disciplinary and Deregistration Procedure of the Spreadmark Code of Practice.

1.6 TRANSITIONAL ARRANGEMENTS

SCOPE

This section of the Spreadmark Code of Practice lists the transitional arrangements that apply from time–to–time to the operational rules.

It may also be used to give advance notice of changes that are being phased in.

These transitional arrangements shall apply until they lapse by expiry. These transitional rules will then be removed or incorporated into main body of this Code.

TRANSITIONAL ARRANGEMENTS FOR GROUNDSPREAD COMPANIES

1. Longitudinal CV will be measured and reported but will not initially be a requirement of certification. It is expected that in about January 2008 this test will become part of the Spreader Performance Certification Scheme.

2. It is expected that a requirement to have a substantial majority of spreader operators in a company trained (or enrolled) in the Spreadmark approved training programme will be introduced in about October 2006.

3. It is expected that in the future the requirement to have 'a substantial majority' of spreaders certified will be replaced with a requirement to have all spreaders certified (with some exceptions still allowed).

4. The feasibility of increasing the tray spacing for transverse testing is being considered. This may result in a change in the testing rules.

2. SPREADMARK APPLICATION PROCESSES

This section of the Groundspread Application Practices of the Spreadmark Code of Practice contains the following material:

2.1 The Procedure for Spreadmark Accreditation

2.2 Application Form for Spreadmark Accreditation of Groundspread Companies

2.1 PROCEDURE FOR SPREADMARK ACCREDITATION

SCOPE

This is the procedure for the accreditation of companies under the Spreadmark Scheme.

APPLICATION FOR ACCREDITATION FOR GROUNDSPREAD COMPANIES

1. Enquiries regarding Spreadmark accreditation of groundspread companies may be directed to the Executive Director of the Fertiliser Quality Council who will forward an official Spreadmark Accreditation Application Form.

2. Applications for accreditation from fertiliser spreading companies to the Executive Director will be in writing on the official application form and must be accompanied by the application fee. The application fee is not refundable in the event that application does not proceed or is unsuccessful.

3. Upon receipt of the application form the Executive Director shall verify that the application is complete and that the appropriate fee is attached. The applicant company is then deemed to be a Spreadmark applicant company.

4. The Executive Director then forwards the application to the Spreadmark Auditor who will undertake a pre-accreditation audit against the Spreadmark System Standard. The Auditor will then make a confidential recommendation to the Executive Director on the applicant company's ability to meet the requirements of the Spreadmark Code.

5. If the Auditor finds that the requirements are met they shall recommend accreditation to the Executive Director and they shall recommend an accreditation period. The period of accreditation will normally be for a period of two years but shorter period may be recommended. This will occur if companies have systems that are not fully in conformance. The term would depend on the severity of the non-conformances. In this circumstance the Auditor may also recommend conditional accreditation. Companies may elect to have additional special audits at their own cost.

   If the Auditor does not consider the requirements of the Spreadmark Code to be met then the applicant company will be advised in writing of improvements that need to be made.

6. If the applicant company has been recommended for Spreadmark accreditation, the Executive Director amends the register of Spreadmark Accredited Companies and issues the company with a signed Spreadmark Company Accreditation Certificate with the expiry date noted.

APPLICATION FOR SPREADMARK COMPANY REGISTRATION FOR A GROUNDSPREAD COMPANY

This form is to be used by fertiliser groundspreading companies that seek Spreadmark registration for their company.

When complete, attach a cheque for $200 + GST ($225) to cover the application fee and send to:

The Executive Director
Federated Farmers
PO Box 414
ASHBURTON

Company Name:	.....
Postal Address:	.....
Physical address:	.....
Contact Person:	.....
Phone Number:	.....
Fax Number:	.....
Other Contacts:	.....
Number of Spreaders in Company Fleet:	.....

We recognise that the Spreadmark scheme requires companies to have in place:

- spreading machinery with testing performance data as prescribed by Spreadmark;
- drivers trained to an acceptable standard; and
- a simple but documented management system showing how the outcomes will be met.

We agree that upon being granted Spreadmark accreditation we:

- will abide by the Spreadmark Codes of Conduct;
- will abide by such Rules, Protocols and Policies as are made by the Fertiliser Quality Council;
- will pay the annual Spreadmark promotion and administration levy;
- allow reasonable access to the appointed Spreadmark Auditor; and
- pay the auditor such audit fees as are due.

We agree that if Spreadmark accreditation is withdrawn or lapses all mention of Spreadmark made in the companies publications or on the companies vehicles or any other use of the Spreadmark trademark will cease.

…….……. …….…….
(Signature) (Name)

……
(Date)

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3. SPREADING MACHINERY TESTING

This section of the Spreadmark Code of Practice contains the following material relating to spreading machinery testing for groundspread vehicles:

3.1 Principles for the Technical Framework for Spreader Certification.

3.2 Technical Specifications for the Testing of Groundspread Fertiliser Machines.

3.3 Principles for the Type Testing of Groundspread Fertiliser Machines.

3.4 Procedure for the Type Testing of Groundspread Fertiliser Machines.

3.5 Guidelines for Checking Spread Patterns.

3.1 PRINCIPLES FOR THE TECHNICAL FRAMEWORK FOR SPREADER CERTIFICATION

SCOPE

In order to ensure that nutrients are spread according to the requirements of the programme the following principles will be followed with regard to the testing of fertiliser spreading machines. Operational matters are covered in the Code of Practice for Fertiliser Use.

PRINCIPLES

1. The spreader test procedure that will be used will allow each spreader to be characterised so as to enable it to be set according to variable fertiliser characteristics. The test procedure has been linked to international methods and practice, adapted to New Zealand conditions.

2. Both indoor and outdoor testing will be permitted for ground spreading equipment. For outdoor testing, requirements for wind speed and direction, angle of slope and nature of surface will be set. Outdoor testing will be carried out in a way that does not cause environmental contamination by overloading the test site. For indoor testing the test facility will be of such a size as to not interfere with the test result and sufficient to accommodate reasonable computer start up issues.

3. The evenness of fertiliser spreading is expressed as a Coefficient of Variation (CV). The evenness of spread both across and along the direction of spreader travel is important. Application rate at the time of test and application rate calibration settings will also be recorded.

4. For agronomic reasons the current minimum acceptable performance for groundspreading equipment will be a transverse CV of 15% for fertilisers containing nitrogen and 25% for all other products.

5. The spreadability of fertiliser depends on its physical characteristics. The usual physical characteristics that are used to describe fertilisers are: bulk density (BD); uniformity index (UI); and size guide number (SGN). Spreading equipment will be tested on a sufficiently wide range of fertilisers to evaluate performance over the range of fertiliser characteristics available in the market. It is intended to test spreaders over a range of fertilisers sufficient to provide a guide to the maximum safe bout width for each particular product that the spreader distributes. The aim of this is to allow the trained operator to set the spreader appropriately. Spreaders will be tested with products with a wide range of physical characteristics and will be certified for a maximum recommended bout width.

6. Spreader certification testing will be done on a two–yearly basis by Approved Spreading Equipment Testers who will test spreaders in accordance with the Spreadmark Technical Specification for the Testing of Groundspread Fertiliser Machines and who will prepare Spreader Performance Certificates and forward them to the Executive Director for approval.

7. Spreader operators will use simple field tools (sieve box and bulk density measure) to estimate these parameters in the field, and on the basis of their training, be able to adjust the equipment accordingly.

8. Where spreading equipment manufacturers can demonstrate that their equipment can reliably comply with Spreadmark requirements then individual spreading machine certification may be able to be replaced with type certification.

9. To facilitate bin identification for certification purposes, the Executive Director will maintain a unique bin identification system. This system is to involve bin plates with unique numbers and an associated register. Reasonable fees may be set for the supply of the plates and the management of the database.

   Bin identification plates are to be fitted to the front right-hand corner of the bin. New machines should have their bin identification plate fitted by the manufacturer/importer.

   Spreader certificates will show the unique bin identification number and spreader certification lapses if the bin changes to another vehicle.

3.2 TECHNICAL SPECIFICATION FOR THE TESTING OF GROUNDSPREAD FERTILISER MACHINES

1. INTRODUCTION

There are two primary factors that determine whether fertiliser is applied evenly and at the correct rate; the performance of the spreading device and the fertiliser flow rate to that spreading device.

The performance of the spreading device is determined by measuring the evenness of transverse and longitudinal distribution.

The fertiliser flow rate has two components; the average flow, which determines the application rate, and the momentary flow, which determines the longitudinal variation. The average flow rate is measured either directly when calibrating the spreader computer or can be determined by experience – the amount of product spread per unit area. Variations in momentary flow can be measured directly or indirectly by measuring the evenness of the longitudinal distribution.

The interaction of these factors is complex and momentary changes in flow may effect transverse as well as longitudinal distribution.

These two primary factors also interact with the operational conditions under which they are measured. It is necessary therefore to define the conditions under which they are measured. These are defined below.

2. FACILITIES

Certification tests may be conducted either indoors or outdoors providing all the following specifications are met:

	INDOOR	**OUTDOOR**
Size	Width sufficient to allow the swath to reach the collectors without hindrance and length sufficient to allow the machine to stabilise prior to passing the collectors (see 4 below)	Width sufficient to allow the swath to reach the collectors without hindrance and sufficient run-up to allow the machine to stabilise prior to passing the collectors (see 4 below)
Slope	Flat	< 5^{o} (the plane of the collectors must be the same as the spreader)
Wind	Nil	< 15 km/hr and < +/- 15^{o} in the direction of travel [1,2,3]

Surface	Flat and hard	Firm and smooth
Antibounce	Lime or similar inert material at 20-25mm depth	Short grass or other vegetation
Site usage	Unlimited	Not to exceed local environmental requirements

Notes [1]In winds speeds between 10 and 15 km/hr, both the test entrant and the testing officer have the right to call a halt to testing if either considers the machine will be unduly advantaged or disadvantaged by the conditions.

[2]Where the spreader performance appears to be unduly advantaged by a crosswind component, the testing officer may set aside the result and request a repeat test.

[3]With the agreement of the test officer, the direction of travel may be either “into wind” or “down wind”.

It should also be noted that because of the vagaries of wind speed and direction, outdoor testing can only define the performance achieved under those specific conditions and, that performance may be less than the optimum performance the machine is capable of under ideal conditions.

3. TEST PRODUCTS

To obtain a meaningful measure of a fertiliser spreader’s performance, certification requires testing over a range of fertiliser characteristics. The spreader will be tested with three of the following five products which have been chosen to represent the physical range of characteristics normally encountered in NZ. One of the three products used will be urea.

	SGN[1]	UI[2]	PRODUCT EXAMPLE
1	20 – 60	4 – 10	Lime or RPR
2	120	20	Standard Ammonium Sulphate
3	250 – 350	30	Superphosphate
4	320	55	DAP or Granulated Ammonium Sulphate
5	320	60	Urea

Notes [1]The Size Guide Number (SGN) is the Mean Particle Size (MPS) in millimetres multiplied by 100.

[2]UI = Uniformity Index which indicates the range of particle sizes within the sample. A low number indicates a wide range of particle sizes.

While the SGN's of superphosphate, DAP and urea are not greatly different, their spreading performance can be. Super may spread differently from DAP because of the different UI. Urea may spread differently from DAP because the bulk density is significantly less.

It is noted that the physical properties of generic fertilisers, such as superphosphate, urea and lime vary over time and between suppliers.

The following measurements will be carried out on each test product:

- size guide number
- uniformity index
- bulk density

4. TEST CONDITIONS

The following conditions must be met for measuring transverse and longitudinal distribution.

Spreader equipment	Clean and in sound working condition. Spinning disc units must have a display of disc speed that can be observed by the operator while spreading
Hopper loading	Sufficient to completely cover the feed mechanism and the hopper outlet throughout the duration of the test.
Application rate	Application rates used during test are to be the average rate for the product in the operators area [1]
Speed over the collectors	As near as possible to the typical operating speed as is consistent with safety considerations.
Distance prior to passing the collectors	20 metres minimum [2]
Number of passes over collectors	One

Notes [1]Where an operator spreads significant areas with a product at rates different from the area average, the special rate should be used.

[2]Mechanically driven metering units require significantly less than 20m to achieve normal flow. For machines with computer controlled metering, the run-up distance may depend on the sensitivity of the software controlling the flow rate. All spreaders should be able to achieve stabilised flow within 20 metres of travel if they are to give acceptable performance in the field.

5. COLLECTORS AND COLLECTOR LAYOUT

Collectors and collector inserts used for Spreadmark testing will be of a type approved by the Fertiliser Quality Council for that purpose. Refer to the register of approved collector types in this Code for details.

Collectors used for transverse and longitudinal measurement will also comply with the following specifications:

- Collector size will be nominally 500 x 500 x 150 mm (or of equivalent area).
- Collectors will have suitable anti-ricochet inserts to ensure that as much fertiliser as practicable is collected.

For transverse distribution measurement, a single line of collectors at right angles to the direction of travel will be used. The length of the line will be sufficient to ensure the significant single pass pattern is measured. Collector spacing will be 0.5m centre to centre (i.e. for a single pass pattern 36m wide, 72 collectors are to be used).

For border spreading measurement the collector layout will be as for transverse distribution measurement.

The fertiliser caught in each collector will be weighed and used to produce a Spreader Performance Certificate. (See item 9, Reporting, below).

When measuring transverse distribution patterns there is a need to remove collectors to allow the spreader to pass. The weight of fertiliser collected in these places will be deemed to be the interpolated weight from the boxes on either side of the gaps.

6. MEASUREMENT STANDARDS

The following measurements will be made and recorded for each certification test.

Factor	Measurement	Standard
Weight of fertiliser	gm/collector	Scales accurate to +/- 0.1 gm
Application rate [1]	kg/ha	<+/- 30% of set rate
Transverse distribution	Coefficient of Variation	< 15% for N fertilisers and 25 % for all others
Longitudinal distribution	Coefficient of Variation	To be advised in future when limits are applied
Border spreading	Distance from spreader to pattern edge and shape of pattern	N/A

Notes [1]Certification is only valid for application rates within 30% of the application rate used during testing.

7. SCHEDULE OF TESTS

The following tests will be conducted:

- Transverse distribution tests - all fertiliser products;
- Longitudinal distribution - one fertiliser product.

Product description - SGN, UI and BD measurements will be carried out on samples of all products used.

8. RECORDING

The following records will be kept for each test:

Identification	Date:				
	Operator:				
	Machine:				
	Technician:				
	Location:				
Facilities	Indoor / outdoor:				
	Size of venue:				
	Slope:				
	Wind speed:				
	Direction in relation to wind:				
Test Products		Rate	SGN	UI	DB
	Product 1				
	Product 2				
	Product 3				
	Product 4				
	Product 5				
Test Conditions	Speed over collectors: Transverse: Longitudinal:				
	Spreader condition:				
	Hopper loading:				
	Distance/time of run-up: Transverse: Longitudinal:				
Collectors	Number per pass: Transverse: Longitudinal:				
	Distribution: Transverse: Longitudinal:				
Certification	Certified Bout Width Product 1 = Product 2 = Product 3 = Product 4= Product 5= Shape of CV v Bout Width graph=				

9. CERTIFIED BOUT WIDTHS

The tester will generate a CV versus bout width graph from the test information obtained for each fertiliser tested and will determine the Certified Bout Widths from these graphs.

The Certified Bout Width of a spreader will be the bout width where the test result is 15% or less for nitrogenous fertilisers and 25% or less for non-nitrogenous fertilisers. Refer to the Glossary of Terms (Section 4) in this Code for a definition of nitrogenous fertiliser.

Spreaders will have both their 'Round and Round' and their 'To and Fro' bout widths determined for each fertiliser tested.

If the CV versus bout width graph is 'S shaped' and intersects the appropriate CV limit at more than one bout width then this is to be recorded as, for example, "Up to 16 m and 22 to 29 meters".

10. REPORTING

Approved Spreading Equipment Testers will, at the conclusion of the test, produce a Spreadmark Spreader Performance Certificate.

The Spreadmark Spreader Performance Certificate must show, at least:

- The spreading company name and a vehicle identification number and the bin unique identification number

.

- The Certified Bout Width (or Bout Width Range) for each fertiliser tested (see item 9, for details) for both 'Round and Round' and 'To and Fro' patterns.
- A description of the physical characteristics of that fertiliser. The description to include: product name, bulk density (BD), uniformity index (UI), size guide number (SGN) and a graph of the particle size distribution.
- The date of the test and the expiry date of the certificate. The expiry date will be two years after the date of the test.

Spreadmark Spreader Performance Certificates will not be issued for spreaders where the Certified Bout Width, when tested on urea, is less than 12 meters for either 'To and Fro' or 'Round and Round' spread patterns. An exception to this rule is made for machines with single spinners which only travel 'Round and Round'. These machines can be issued with Spreadmark Spreader Performance Certificates if they can achieve 12 meters on a 'Round and Round' spread pattern.

Dedicated orchard spreaders do not need to be evaluated for evenness of spread pattern but do need to be fit for purpose on rate and band width in order to be certified.

On completion the Spreader Performance Certificate will be sent to the Spreadmark Executive Director for approval. This approval will take the form of the Executive Director's signature on the certificate.

3.3 PRINCIPLES FOR THE TYPE TESTING OF GROUNDSPREAD FERTILISER MACHINES

SCOPE

The Fertiliser Quality Council wishes to encourage the development and use of fertiliser spreading equipment that can effectively and reliably spread fertiliser.

To facilitate this the principles below will be followed with regard to the Type Testing and Type Approval of fertiliser spreaders. A list of fertiliser spreading equipment models that have Spreadmark Type Testing Approval will be maintained in this Code.

PRINCIPLES

1. "Good spreaders" will be recognised by being Spreadmark Type Approved. Spreaders which meet the following general criteria can become Spreadmark Type Approved. Spreadmark Type Approved spreaders will:

    - be able to achieve satisfactory spreading performance over the range of the fertiliser types (particles sizes) specified by the spreader manufacturer.
    - perform satisfactorily over the normal range of application rates for the fertiliser types specified by the spreader manufacturer.
    - have transverse spreading patterns that are substantially unaffected when operating on hill country compared to the flat (Note: this criteria will be added later when the following bullet point will be added to section 1 of the Assessment Criteria for Type Tested Spreaders: "the effect of operating on hill country will be assessed by comparing the performance on one product up and down hills with performance on the flat").
    - have longitudinal distribution patterns that are satisfactory over a representative range of fertiliser types and application rates.
    - have substantially the same performance characteristics between different units of the same model.
    - be provided with suitable, user-friendly operator's handbook that has sufficient information to enable that the operator is able to achieve satisfactory spreading with the fertilisers and application rates defined above.

    Satisfactory spreading performance is defined as meeting the Spreadmark evenness standards at the range of bout widths for which the spreader has been designed at the required application rates for a given fertiliser specification.

2. It is recognised that the spreading characteristics of spreaders are largely defined by the disc design, disc speed and the design of the drop off zone. The evaluation process and the model description will accommodate this.

3. There is much that is not fully understood about the characteristics of spreaders (e.g. stability of spreading characteristics when the properties of the fertiliser changes slightly and reproducibility between machines). Best practice in these areas is not well understood and will change over time. We will learn from our experience with Type Approval and it is recognised that this will probably lead to alterations of the rules and the criteria.

4. Type Approval will be subject to a re-approval process.

5. In order to maintain credibility, testing for Spreadmark Type Approval can only be done by a Spreadmark Approved Equipment Tester who is not an employee of a spreader manufacturer or importer.

3.4 PROCEDURE FOR THE TYPE TESTING OF GROUNDSPREAD FERTILISER MACHINES

1. EVALUATION PROCESS

1.1 Manufacturers or importers of fertiliser spreading equipment wishing to gain type certification for their spreaders should contact:

The Executive Director
Federated Farmers Inc
PO Box 414
ASHBURTON

1.2 Upon receipt of an application for a particular model/s of fertiliser spreading equipment to be considered for Spreadmark type Approval the Executive Director will forward the application to the Spreadmark auditor who, without unreasonable delay, will contact the applicant to evaluate whether the proposal meets the requirements of this Code.

1.3 The Spreadmark auditor will provide such guidance as is appropriate, consider the information provided from reputable overseas sources or from the recognised Spreadmark Equipment Testers, who have followed the assessment criteria below, and formulate a recommendation to the Spreadmark Executive Director. This recommendation must include whether or not to grant Spreadmark Type Approval for the model/s under consideration and, if the recommendation is to grant approval, any limitations to that approval.

1.4 The Spreadmark auditor shall report their findings to the Executive Director. Where appropriate, the Executive Director will issue a Spreadmark Type Approval certificate and will cause the register of Spreadmark Type Approved fertiliser spreading equipment to be altered.

2. ASSESSMENT CRITERIA

The criteria that will be applied to assess whether a particular fertiliser spreader model should be Spreadmark Type Approved are described below.

2.1 Spreading performance envelope of the type

The purpose of this part of the testing programme is to ensure that satisfactory spreader performance can be achieved over an appropriate range of fertilisers and application rates and that spreaders have reasonably stable operating characteristics over small variations in fertiliser characteristics.

In order to do this one spreader unit will be tested as follows:

- The evenness of distribution will be tested with a range of fertiliser types representing the particle size ranges (SGI and UI) that the spreader has been designed to spread. Normally six to nine fertiliser types will be used.
- The effect of application rate on the evenness of distribution will be tested by transverse distribution measurements at the minimum, median and maximum agronomic rate for each product.
- The effect of flow rate on the transverse distribution pattern will be assessed at the lowest application rate at the slowest forward speed and at the highest rate at the highest forward speed with a limited number of products.
- Longitudinal variation will be measured with three products covering the range of SGNs at their median application rates.

As the intention is to identify where differences occur, it may not be necessary to test all products at all rates. Products may be grouped and one product used as a representative product once it has been established that their spreading performance is the same. If however, differences appear between similar products, more intensive testing will be done to define the extent of the difference and where they occur. The actual amount of testing will be determined by the need to have enough information to decide whether the spreader performance is satisfactory over the appropriate range of fertilisers and application rates and whether or not the spreader has reasonably stable operating characteristics over small (normal) variations in fertiliser characteristics.

The manufacturer/importer may self-impose limits to the testing of the spreader model. Examples of this could be to test on lime only, to test only on the flat or upper limits to the application rate could be set. Any such limits will be recorded and reported on the type test certificate and on the published list of Approved Spreaders.

All tests will be carried out in accordance with the Technical Specification for the Testing of Groundspread Fertiliser Machines.

2.2 Reproducibility of the type

A number of units of the same model will be tested to identify whether different units of the same model of spreader have substantially the same performance characteristics. These tests will be carried out at critical points identified during the testing of the type performance envelope (eg at low application rates with difficult to spread products).

The number of units that will need to be evaluated to check reproducibility between machines will normally be two or more and the number of transverse distribution measurements made will normally be six per unit. Spreadmark test data may also be used as reproducibility evidence. The actual number of vehicles tested and transverse distribution measurements needed will be sufficient to enable a clear

opinion to be formed about the reproducibility between machines for that model of spreader.

In order to be type approved the shape of the curves on the Spreader Performance Certificates, under the same test parameters, will need to be substantially the same. Where fertilisers with slightly different characteristics are used on different machines an attempt will be made to correct for this when comparing the shapes of the curves.

Reproducibility testing may be carried out at different times and places to the type performance envelope testing described in section 2.1, above. Reasonable care will be taken to use fertiliser products with the same or very similar SGN and UI values to those used for spreader performance envelope testing. It may be necessary to retain product between type tests or reconstitute product by particle size to ensure that products of the same SGN and UI are used for type testing.

2.3 Documentation

In order to be Spreadmark Type Approved, machines will be provided with a suitable, user-friendly operator's manual describing their performance characteristics and adjustments. The information in the operator's manual must be consistent with the information found in the spreader performance envelope testing (see section 2.1, above).

3 STANDARD DESIGN

Manufacturers or importers wishing to apply for type approval need to define the spreader model that is being described, have the facility to manufacture spreaders reproducibly and make a commitment to advise of changes to the spreader design.

The design shall be defined on a set of drawings showing the critical dimensions of the spreading equipment. These will include the vane and disc dimensions and the dimensions which characterise the drop-off zone (the area in which the fertiliser enters the spinning disc). These drawings will be used to check that the design of the approved models remains the same.

The spreader manufacturer must have processes that are capable of ensuring that approved designs are made consistently.

4. TESTERS

Testing for Spreadmark Type Approval will be by a person recognised by the Fertiliser Quality Council as being able to do so.

Testing for Spreadmark Type Approval may not be done by a Spreadmark Approved Equipment Tester who is an employee of a spreader manufacturer or importer.

5. COSTS AND FEES

Manufacturers and importers seeking Spreadmark Type Approval pay the tester for the costs of producing the reports that describe the results of the testing for each of the assessment criteria outlined.

Applicant manufacturers and importers also pay the Fertiliser Quality Council for:

- Direct costs incurred in gaining and maintaining Type Approval, and
- An annual promotion and administration levy of $500 + $100 per unit sold in that year + GST per spreader type listed. This levy shall not exceed $2,000 plus GST per spreader type listed in any one year.

Where fertiliser spreading companies manufacture their own Type Approved fertiliser spreaders for their own use, the number deemed to be “sold” will be the total number of that type manufactured in that year.

6 REVISION OF TYPE TESTING RULES

From time-to time there will be a need to revise the Spreadmark Type Testing Rules. Revised rules will apply to applications received after the date of the change and to all re-approvals.

Manufacturers and importers of fertiliser spreaders will be consulted about proposed changes.

7. MODIFIED DESIGNS

When approved designs are modified they will normally not require the full testing required of a new application. There shall be sufficient testing to show that the modified design is an improvement on the performance envelope of the original type test.

8. REAPPROVAL

Manufacturers and importers holding a Spreadmark type testing approval will be asked periodically to confirm that the design has not altered and may be asked to demonstrate that the approved design still conforms to the current version of the Type Testing rules.

Checks on the distribution pattern of Type Approved spreaders may be carried out from time-to-time to confirm that type performance for that model is being maintained. Spreadmark certification test data may be used to re-confirm type performance characteristics.

9. SPREADER PERFORMANCE CERTIFICATES

Type tested spreaders must be sold with a Spreader Performance Certificate for that model covering the products used during type testing and showing the Coefficient of Variation (CoV) versus Bout Width (BW) performance for that model. This certificate, which must be dated, gives the fertiliser spreading company a Spreadmark certificate, valid for a two year period.

These manufacturer/importer supplied Spreadmark Performance Certificates for Type Approved machines can be given an extended life where it can be demonstrated to the Spreadmark Auditor's satisfaction that there is appropriate evidence of maintenance and on-going checking of the spread pattern.

10. LIST OF TYPE APPROVED GROUNDSPREADERS

A list of Spreadmark Type Approved Groundspread Spreaders can be found in this Code. The list will, from time to time, be given appropriate publicity.

3.5 GUIDELINES FOR CHECKING SPREAD PATTERNS

1. INTRODUCTION

The purpose of this guide is to assist companies wishing to check the spread pattern of their fertiliser spreaders.

Spread pattern checks should be carried out:

- After damage or a major service of the spreading mechanism,
- Between two–yearly checks to meet the annual spreader checking requirement (see section 4.2 of the Spreadmark System Standard),
- In order to prepare machines for testing by Spreadmark Approved Spreader Testers,
- In order to demonstrate a checking history to substantiate a request for the extension of a Spreadmark Spreader Performance Certificate (see section 4.9 of the Spreadmark System Standard).

The procedure for checking the spread pattern of fertiliser testers is based on the process used by Spreadmark Approved Spreading Equipment Testers but is considerably simpler.

Note that there is a considerable amount of information and background material available to spreader checkers in earlier sections of this Code. Checkers are referred to “Principles for the Technical Framework for Spreader Certification” and the “Technical Specification for the Testing of Groundspread Fertiliser Machines”.

2. PROCEDURE

Test Site

Select a suitable site for checking the spreaders. This will generally be outdoors on flat land with relatively short grass. Testing should ideally be either directly into or with the wind. The wind speed should not be so high as to distort the spread pattern (generally about 15 kph).

Do not conduct too many tests in the same location to avoid over-fertilising the land.

If testing indoors ensure that the test venue is large enough to give a proper run up and also large enough to avoid ricochet effects.

Participation

It is recommended that operators will be involved in the testing of machines that they drive. This will enhance their knowledge of factors affecting the performance of their machine.

Test Products

Spreaders should be checked with more than one fertiliser. The fertilisers used for testing should be typical of those normally spread with that machine.

When testing, record the bulk density and the sieve box results for the fertilisers used.

Collectors

Collectors should be laid out across the direction of travel. Anti-bounce inserts should be fitted. Collectors may be laid out continuously or at one meter spacings – depending on the number available.

Collectors should collect a reasonable amount of the swath. For most machines it has been found that about 20 trays at a one meter interval provides sufficient information to allow sound assessments of spreader performance to be made.

Material Collected

The fertiliser collected in each tray should be weighed to the nearest 0.1 gram or the volume measured using graduated tubes.

Graphs

The test information gathered should then be graphed to produce a spread pattern graph which can be compared with the original test pattern.

In order to demonstrate that the Recommended Bout Width remains valid the test information (tray placement vs weight or volume collected) should be loaded into the appropriate computer software. This service may be available from one of the Spreadmark Approved Testers listed in this Code.

4. OPERATOR TRAINING

This section of the Spreadmark Code of Practice contains the following material for groundspread fertiliser companies:

4.1 Spreader Operator Training Principles;

4.2 Spreader Operator Training Outcomes;

4.3 Approved Training Courses

4.1 SPREADER OPERATOR TRAINING PRINCIPLES

1. PHILOSOPHY

The Fertiliser Quality Council are committed to the implementation of the Spreadmark Code of Practice and to that end has supported the development of a training syllabus to assist with the successful achievement of the programme's objectives. The Council believes that the successful achievement of the objectives of the Code is dependant on sound knowledge and understanding within the context of the activity of placement of fertiliser in New Zealand, and that through training of the operator/driver such knowledge and understanding will be gained.

2. METHODOLOGY

Training outcomes have been determined which are based on the material contained in the Spreadmark Code of Practice. The training outcomes are focused on developing the understanding and knowledge that are required by a competent operator/driver in the activity of spreading fertiliser.

Training programmes have been developed based on these training outcomes. Relevant notes, extracts, explanations, demonstrations, worked examples and practical activities support the syllabus units. The material ~~to~~ used is structured to suit a wide range of operator/drivers with varying levels of knowledge and understanding. In all training activities, the emphasis is on technically sound information and direction, and all essential information will be presented in clear, concise terms and supported by illustrative material and practical aids.

3. APPROVAL

Courses which the Fertiliser Quality Council accepts as meeting the operator training requirements of the Spreadmark Code of Practice are listed in this section of the Code.

4. COMPETENCY

Competency will be assessed at a number of points during the training using a range of appropriate instruments including:

- Written tests
- Multi-choice questions
- Non-verbal graphical interpretation
- Workshop activities
- Verbal recording
- Practical tests

The assessment methods will support and enhance the training with provisions having been made to identify at an early stage those participants

who may require extra assistance to achieve the training outcomes.

Each participant will be required to reach a minimum level of competency in all aspects of the training programme in order to achieve certification.

A sample of all assessment outcomes will be subjected to independent moderation relative to the training objectives stated in the syllabus.

Any person failing to meet the required standard will be advised of the areas of concern and given further coaching and re-tested to ensure he/she achieves the required standard.

5. ADMISSION REQUIREMENTS

The Fertiliser Quality Council encourages all persons actively involved in, associated with, or interested in the placement of fertiliser in New Zealand to be trained in the requirements of the Spreadmark Code of Practice. To facilitate this there should be no limitations of prior learning or employment placed on people entering this training.

6. CERTIFICATION

Certification is only to be available upon the successful completion of an approved training course by an accredited provider. This includes all on-course activities and evaluation tasks, and any pre and/or post course activities.

4.2 SPREADER OPERATOR TRAINING OUTCOMES

SCOPE

This material describes the outcomes sought of an operator training programme to be acceptable as suitable training for operators involved in the Spreadmark scheme. The purpose of the training is to ensure that fertiliser spreading machinery operators are competent.

OUTCOMES OF TRAINING

The competence of fertiliser spreading machinery operators is ensured by them completing a training course with the following training outcomes:

1. FERTILISER KNOWLEDGE

This will involve a basic knowledge of fertilisers and lime.

- Types.
- Safety Data Sheets.
- Factors which could lead to problems e.g. mixes of fertilisers with very different particle sizes (SGN) or incompatible mixes.
- How the bulk density (BD), SGN and uniformity index (UI) of various fertilisers interact and affect how well various fertilisers can be spread.
- How to measure SGN and BD with sieve and volume boxes.

2. SPREADER SKILLS

The operator skills relating to spreaders are:

- Consequences of poor spreading (agronomic and environmental), awareness of the influence of wind.
- Choosing an appropriate bout width (BW) for particular loads of fertiliser.
- Interpreting information to be able to know what settings on spreading machinery are needed for various fertilisers and fertiliser characteristics in order to achieve the correct application and BW.
- Adjusting spreader equipment.
- Factors affecting the performance of the machine over time (build-up).
- Handling spillage.
- Being able to operate to a particular bout width.

3. COMMUNICATION SKILLS

Sufficient communication skills with farmers to ensure that the fertiliser is applied in the correct place and that local hazards are identified.

4. ENVIRONMENTAL AWARENESS

An awareness of the consequences for stock health and of environmental damage from fertiliser, the actions taken to avoid this (waterways, riparian areas and soakage zones) and the effect of wind drift.

4.3 APPROVED TRAINING COURSES

The following training courses are recognised by the Fertiliser Quality Council as meeting the operator training requirements of the Spreadmark System Standard:

1. Stage One of the National Certificate in Commercial Road Transport (Ground Spreading) of the NZ Road Transport Logistics. Industry Training Organisation comprising the following Unit Standards:
    - **1732** Select and record routes as a road transport operator.
    - **1737** Drive a heavy vehicle on unsealed road surfaces.
    - **1738** Drive heavy vehicles in off-road environments.
    - **6257** Operate a front end loader mounted on a tractor.
    - **15164** Demonstrate knowledge of driving hours law and complete driving hours logbook.
    - **17973** Drive a heavy rigid motor vehicle.
    - **19370** Demonstrate knowledge of the Spreadmark Code of Practice as it applies to fertiliser spreading.
    - **19373** Demonstrate knowledge of fertiliser and the implications for handling and spreading fertiliser.
    - **19374** Describe fertiliser spreaders and fertiliser spreading and demonstrate driving skill.

2. The Spreader Operator Training Course previously operated by the Fertiliser Quality Council (no longer offered).

5. REGISTERS

This section of the Spreadmark Code of Practice contains the following registers:

5.1 Approved Spreading Equipment Testers,

5.2 Collectors Approved for Use with Spreadmark Testing, and

5.3 Spreadmark Type Approved Spreading Equipment.

NOTE: *The Executive Director will maintain, and make public, a list of fertiliser spreading companies which hold Spreadmark accreditation. This list is not included in this Code.*

5.1 APPROVED SPREADING EQUIPMENT TESTERS FOR GROUNDSPREADERS

Below is a list of people, and the organisations that they are employed by, that are recognised by the Fertiliser Quality Council as being able to carry out fertiliser groundspreading machinery testing and certification for the Spreadmark programme.

Garth McMaster
McMaster Engineering Ltd
169 Great North Road
Winton
Phone: (03) 236-7275 or (0274) 334-486

Russell Horrell
AgCal NZ Limited
150 Halswell Junction Road
Christchurch
Phone: (03) 322-8760 or (027)220-6610

Tammy Andreassend
Transport Waimate Ltd
PO Box 74
Waimate
Phone: (03) 689 8009

Lance Pedersen
Himatangi Transport Ltd
RD 11
Foxton
Phone: (06) 329 9712

Scott McKenzie
Beck Engineering Ltd
Seaward Road
Edendale
Phone: (03) 206-6650 or (027) 206-6650

David Hoyle
Spreader Calibration Services
PO Box 67
Maungaturoto
Phone: (09) 431-1020 or (021) 618-362

Jim Laird
Jim Laird Assessment Services
PO Box 671
Masterton
Phone: (0274) 412 659

Gavin Hunt
Engineering Repairs Ltd
14 Watson Street
Ashburton
Phone: (03) 308-1506

Paul Johnston
Sandford Transport Ltd
808 Waitangi Road
Napier
Phone: (06) 835 9572 or (0274) 880 623

Barry Sadler
Transport Waimate Ltd
PO Box 74
Waimate
Phone: (03) 689 8009

Ted Usmar
NT Wealleans Ltd
PO Box 39
Matamata
Phone: (0275) 774-146 or (07) 888-1759

Any person wishing to be considered for appointment as an Approved Spreading Equipment Tester should contact the Executive Director, Federated Farmers, PO Box 414, Ashburton.

5.2 COLLECTORS APPROVED FOR USE WITH SPREADMARK TESTING FOR GROUNDSPREADERS

The following is a list of collector and collector insert designs approved by the Fertiliser Quality Council for use in Spreadmark testing for groundspreaders:

Organisations wishing to have an additional collector and collector insert designs approved should advise the Executive Director, Fertiliser Quality Council, PO Box 414, Ashburton and obtain a comparative test report from Dr I. Yule, NZ Centre for Precision Agriculture, Massey University, Palmerston North.

1. The collector and baffle design of the NZ Groundspread Fertiliser Association.

   These are available from:

   The Executive Director
   NZ Groundspread Fertilisers Association
   PO Box 414
   Ashburton

2. The collector and baffle design of Spreader Calibration Services

5.3 SPREADMARK TYPE APPROVED SPREADING EQUIPMENT

Companies manufacturing fertiliser spreading equipment and wishing to gain type certification for their groundspreaders should contact the Executive Director, Federated Farmers, PO Box 414, Ashburton.

The protocol for type-testing can be found in this Code.

There are currently no fertiliser spreader types which are recognised by Spreadmark as being able to reproducibly comply with Spreadmark requirements.

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