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NEWSLETTER No 27

November 2003

The Cicerone Project invites you to a seminar on

"Soil tests and their interpretation" and "Trace Elements in Livestock"

Tuesday 25th November

at the CSIRO Liaison Centre, Chiswick, from 9.00am.

Terry Coventry	Welcome by Cicerone Chairman
Graeme Blair	Soil sampling, timing and the economics
Chris Guppy	When and where to fertilize
Mick Duncan	Acid soils
Natasha Tombs	Soil tests for elements
Kathy King	Biological Soil tests
Clare Edwards	Soil survey results and Land Scan
Betty Hall	Selenium and its effects
Craig Stevenson	Deficiencies and Permatrace pellets
Brent Baxter	Injectibles for trace elements

Entry $20 for members which includes a free lunch,
$40 for non-members (who can join Cicerone on the day!!!)

To help with catering please book in for lunch
Phone 6778 3871 by Friday 21st November

These are your elected members of The Cicerone Board. Please make contact with them if you suggestions for trials we can run ... remember our motto
Compare, Measure, Learn, Adopt

Terry Coventry, Chairman, Producer member Phone 6775 3749

Simon Croft,	Producer member, new member elected at the last AGM
Phillip Dutton,	Vice Chairman, Producer member Phone 6778 2127
Brian Gream,	Producer member
Betty Hall,	Extension member, veterinarian
John Hartmann,	Producer member
Bob Marchant,	NSW Agriculture representative
David Paull,	Treasurer, CSIRO representative
Jim Scott,	UNE representative
Pauline Smith,	Extension member, New England TAFE
Hugh Sutherland,	Producer member
Mark Waters,	Producer member, new member elected at the last AGM
Justin Hoad,	Farm Manager, Phone 0412 209 328
Caroline Gaden,	Executive Officer, Phone 6775 2324 or 0421 101 004

Chairman's report by Terry Coventry

My first report to you and we've had a good year at Cicerone. We continue to run Farm A, B and C as separate grazing enterprises with the intension of establishing the farm that is most sustainable; a program that is working very well. Additional projects which have been carried out are being reported on or published as the information becomes available. Producers are receiving this information favourably. The Board is working well and I thank them all for their contribution but particularly those who spent so much of their time on the application for funding to AWI. Cicerone Board members are unpaid and their input is invaluable. Also Caroline and Justin are working well and seem to be just the right people for their jobs.

Despite the fact we are achieving in our chosen field, the funding from AWI may be discontinued. We would find it very difficult to continue if this were to happen. We generate some income from our farming operation but certainly not enough to cover our applied research costs. Our funding application may be successful if a continuation of 2% wool tax is achieved. If the tax were lower I doubt if they will continue funding us. We will then be in the dilemma of casting about quickly for funding perhaps without success. We should look to others like MLA for additional funding now.

Additional projects which fit with the present operation and can be run and reported on independently, like the snow combs trial, can attract additional funding and be very beneficial to our members. Some of you may have thoughts about trialing your pet project, please bring it up and we'll see if we can incorporate it. Many have already been mentioned and we thank you for those. One area I believe we can work on is in the quality of feed rather than quantity. We need to show differences in weight gain /fat cover between four seasons of growth and predominance of different grasses and clovers. In this particular field a surprising outcome may be the key to understanding differences in tensile strength in wool.

You will see later from the production figures of the farms that we are beginning to show huge differences. This is our aim and from these figures we will learn which farms are more sustainable in every sense. I hope we are still here in five years time to be able to overlay the differences in the years to be able to appreciate which farm is most sustainable.

Submitted to Australian Society of Animal Production Conference University of Melbourne 4-8 July 2004

LEARNING HOW TO INCREASE THE PROFITABILITY AND SUSTAINABILITY OF GRAZING ENTERPRISES BY COMPARING THREE DIFFERENT INPUT AND GRAZING MANAGEMENT SYSTEMS

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SUMMARY
The Cicerone Project has been set up to study the long term profitability and sustainability of three different input and grazing management systems. Farm A receives high inputs of sown pastures and fertilizer, and uses flexible rotational grazing, with 8 paddocks and 4-5 mobs of livestock. Farm B receives medium inputs of fertilizer and uses similar grazing management and paddock allocations to Farm A. Farm C receives the same medium level of inputs as Farmlet B but employs intensive rotational grazing involving long rest periods between grazings. This farmlet has 33 paddocks and livestock mobs are combined to no more than 3 mobs to increase the grazing pressure. Livestock are weighed regularly; ewes are scanned for twins; wool characteristics are measured for all sheep e.g. fleece weight, OFDA and Laser Scan for tensile strength; parasite burdens are monitored; pastures have been assessed monthly and also each time stock are moved, and carrying capacity (DSE) and grazing days per paddock are recorded. Soil tests are conducted prior to fertilizer application. Economic data on each farmlet has been collected to include all inputs such as labour, seed and fertilizer, fencing, agistment, animal health products and supplementary fodder.
Data have been collected since July 2000 when the different management treatments commenced. Already there are marked differences between the farmlets in the animal weights, breeding performance, wool characteristics, botanical analysis, parasites and economic performance.

Keywords: profitability, sustainability, rotational grazing, grazing pressure

INTRODUCTION
The Cicerone Project is a producer led organization funded by AWI with the motto to 'Compare – Measure - Learn - Adopt'. Land has been leased from CSIRO on the Northern Tablelands of NSW and The Cicerone Farm has been set up to study the long term profitability and sustainability of three different input and grazing management systems.

The Cicerone Farm leases a total of 250 hectares of which 150 ha is utilized on the 3 farmlets, A, B and C, whilst the remainder is used for other animal focused trials. Ongoing trial results are published in a member newsletter and at http://www.cicerone.org.au
As each farmlet is subject to the same climatic conditions and as the 'whole-farm' consequences of different management approaches are being measured, it is hoped that both researchers and farmers will view the findings as credible due to the scale employed.

MATERIALS and METHODS
The allocation of land to the three farmlets was carried out in such a way that the starting conditions of each farmlet were equivalent. An electromagnetic conductance survey of the land was carried out and this information was used in conjunction with data on slope and history to allocate equivalent land of each soil type with similar topography. New fences and water pipes were then installed.

Thus we have 3 farmlets that have non-contiguous paddocks spread over the whole area, with a series of laneways to allow easy stock movement between paddocks and to the yards. Although there is no replication, something very difficult to do on this scale, we contend that valid comparisons can be made between the farmlets. This re-fencing of paddocks was completed by July 2000 and the different management strategies and data collection commenced at this time

Each farmlet differs in the levels of input (sown pastures and fertilizer) and grazing management. A flock of ewes bought from CSIRO was randomly distributed across the three farms. They and their offspring then stay on their own farm throughout the year except for a six week period for joining when all ewes are run together with all rams on land adjacent to the farmlets. Purchased cattle have also been randomly allocated to each farm and sheep make up 85% of the DSEs and cattle the other 15%.

Farm A is a high input farm with flexible rotational grazing. It has 8 paddocks, 4 to 5 mobs of animals, and has been sown to deep-rooted perennial grasses and perennial legume pastures throughout. Fertilizer is applied to achieve targets of 60 ppm P and 10 ppm S respectively. The target carrying capacity is 15 dse/ha within 5 years.

Farm B receives a medium level of inputs with flexible rotational grazing with 8 paddocks and 4 to 5 mobs. There are no newly sown pastures and the fertilizer input is close to the district average with targets of 20ppm P and 6.5 ppm S respectively. The target carrying capacity is 7 dse/ha within 5 years. Thus these two farms may be compared for their differing levels of input as the grazing management is the same.

Farm C also receives a medium level of inputs but with intensive rotational grazing being employed. The soil

fertility targets are the same as Farm B. The target carrying capacity is 15dse/ha within 5 years. The grazing management consists of just one to three mobs on 33 paddocks which may at times be further subdivided with electric fences to allow increased grazing pressure and much longer rest periods between grazings (up to 200 days). Thus Farmlets B and C may be compared for their differing grazing management as the levels of inputs are the same.

To illustrate this great variation in grazing management, the lambs born in late 2001 had 7 paddock moves during the 12 months from marking if they were an A Farm lamb; they had 4 paddock moves if they were a B Farm lamb and 73 paddock moves if they were a C Farm lamb.

We measure lamb weights each month from marking; ewes are weighed and fat scored four times a year; scanning for twins is carried out; wool characteristics are collected for all sheep e.g. fleece weight, OFDA and Laser Scan for tensile strength; individual fleece values are calculated; cattle are weighed regularly; pastures are assessed monthly and also each time stock are moved, and carrying capacity and grazing days per paddock are recorded. Soil tests are conducted prior to fertilizer application. Parasites are monitored through faecal egg counts and drench is only given when indicated by the FECs. (The exception to this is the quarantine drench we are obliged to give all sheep prior to use of the CSIRO shearing shed at shearing time in early August). Economic data on each farmlet is collected including all inputs such as labour, seed and fertilizer, fencing, agistment, animal health products and supplementary fodder. Stock are given a current market value when they are bought on or sold off the farm even if we 'sell' them to the Periphery for use in another trial. We access meteorological data from the CSIRO weather station.

RESULTS and DISCUSSION

Grazing management. Farm A is the high input farm and by taking out paddocks for re-sowing we have effectively cut back our paddock number to 6 or 7 during this establishment phase. Thus the grazed paddocks have livestock present for long periods and little rotation of paddocks was possible.

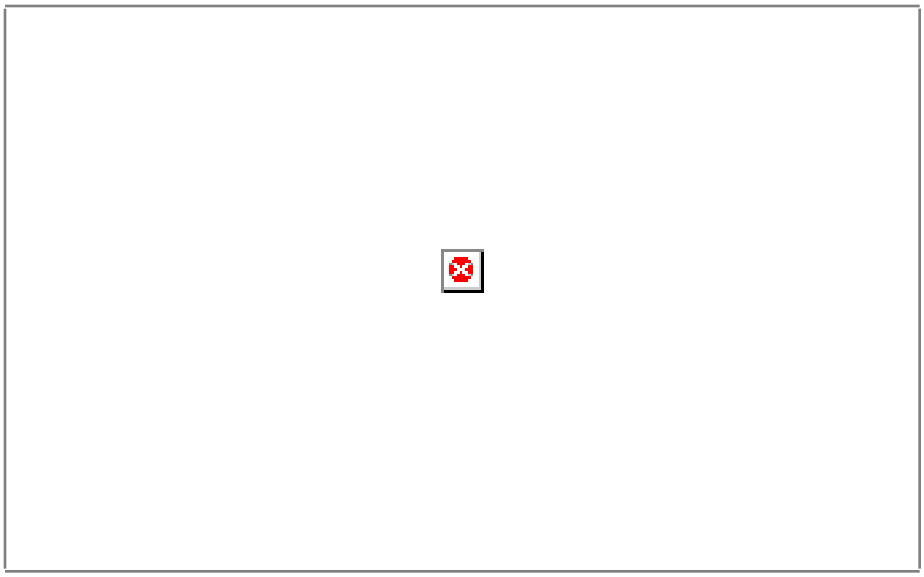
On the B farm there are usually 6 paddocks being grazed with the other two being rested with a specific aim in mind, for example preparing a lambing paddock or one for weaners.

On Farm C the animals are moved frequently, staying only a few days in each paddock depending on the season. From July 2000 to October 2001 the C farmlet had 16 paddocks in use and the rest period between grazings varied from 30 to 120 days. In October 2001 electric fencing was used to further subdivide the paddocks into 33 and the rest period increased out to a maximum of 210 days during September to December 2002. Some paddocks were further subdivided into 2 or 3 with temporary electric fencing so our effective paddock number increased again to 40+.

At times during the drought, stock on all farms were given supplementary feed to reach target weights and fat scores.

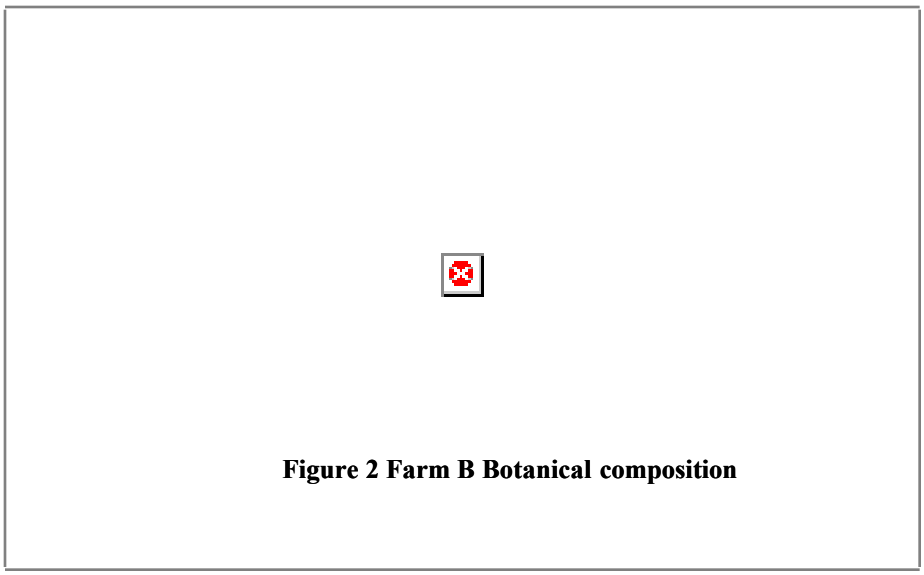
Botanical composition Figures 1-3 below show the broad classification of pasture types on the farms since just prior to the implementation of differing management of the three farms (July 2000).

The results (summarised over all paddocks) show broadly that the Farms are becoming quite different in their composition with Farm A and C showing higher proportions of ‘desirable’ grasses (i.e. deep-rooted, fertilizer responsive species) and little legume. The low levels of legume reflect the dry seasons experienced since 2000.



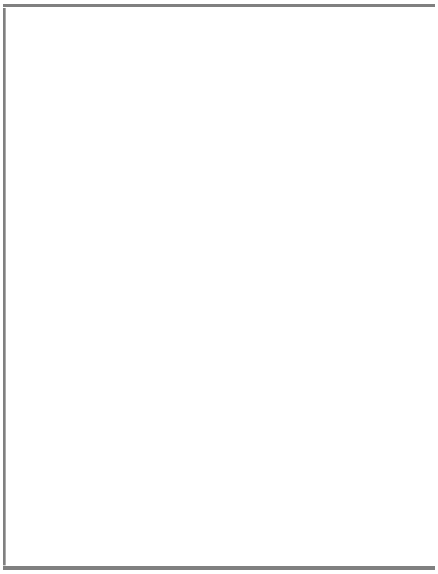
Nevertheless, Farm A, with a goal of 100% sown species, has now increased to about 70% of the more productive species (i.e. the sum of sown grasses such as phalaris, tall fescue + legumes + other introduced grasses not sown such as perennial ryegrass and cocksfoot) whilst Farm B is at 40% and Farm C 55%. Farm B is seeing an increase in native grasses at the expense of the desirable grasses. In all farmlets, both broadleaf and grassy weeds appear to be declining.

Figure 1 Farm A Botanical Composition



When favourable seasonal conditions return, we would expect the legume component of Farm A to expand in contrast to the other farmlets. This is likely to generate some substantial changes not only in botanical composition but also in animal production as the nitrogen economy increases due to legume growth, consumption by animals and the return of significant amounts of nitrogen to the soil.

Figure 2 Farm B Botanical composition

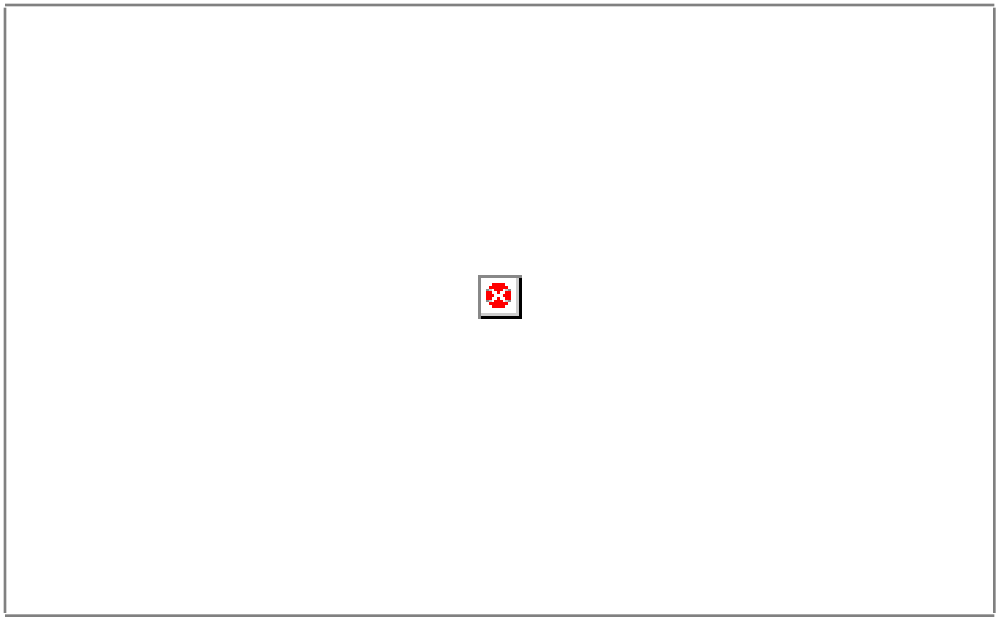


Farms A and B have been run with stock performance in mind whereas Farm C has been run to benefit the pasture species. The long rest period obtained, up to 210 days in the drought, has been useful in parasite control but has meant the grass is less suitable as sheep feed when these animals return to graze. It will be interesting to see how the overall balance between the needs of the livestock and the needs of the pasture develop over time on Farm C.

Figure 3 Farm C Botanical composition

Animal Weights. The average body weights of lambs from marking has been measured each month in their first year and results for each year have shown that, in general, the lambs on Farm C do not grow as well as those on the

other farms.



In Figure 4 the results for the 2001 drop wether lambs show there are marked differences in liveweight between the three farms from as early as marking time (which reflects variation in the ewe's nutrition). This difference continues from marking through to maturity. (August dips indicate shearing). The 2000 drop and 2002 drop lambs on C also exhibit a similar lagging behind lambs from the other farmlets.

Figure 4 Average body weights 2001 drop wethers

These differences are also reflected in the weights and fat scores (FS) of the mature ewes. As at 1 Sept 2003 the average liveweights for the A ewes was 54.6kg with FS 3.3, for the B ewes, 52.9kg, FS 3.1 and for the C ewes 48.6 kg, FS 2.6. Over the lifetime of the animal the lower fleece weights and lower fertility (as shown by scanning results) exhibited could be considerable, meaning lower profitability.

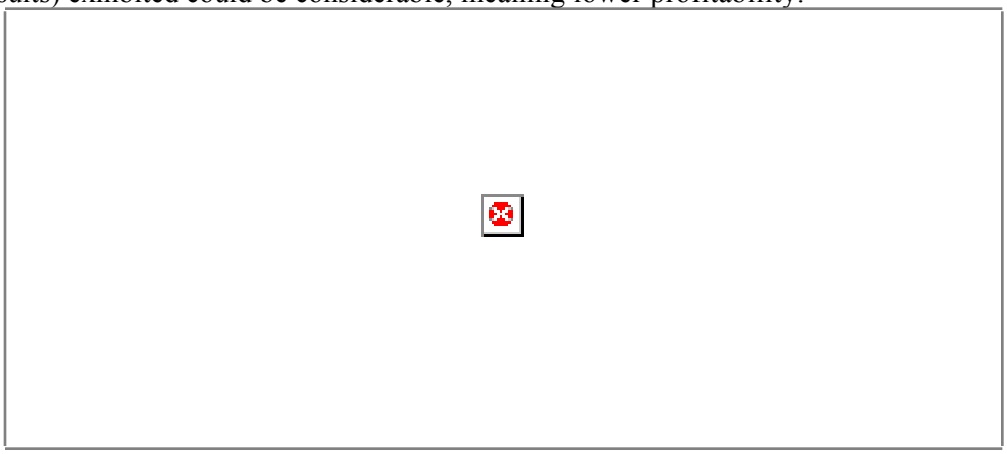


Figure 5 shows the average fleece weights and micron for the ewes and wethers on the three farmlets in 2003. For both types the fleece weight of Farm C is lower, but this is counteracted by a lower micron. However, despite the better micron, at the 2002 shearing Farm A earned $13200, farm B earned $8700 and Farm C earned $7710.

Figure 5 Average fleece weights and micron 2003 shearing

Economic analysis

Labour, fencing and water, supplementary feed, animal health costs, pasture establishment and maintenance have all been noted. Farm A's greatest expense has been the establishment of new pastures whereas Farm C's has been the fences and water troughs. In 2003 Farm C has had two less drenches that the other farms. Wool income has varied between the farms depending on the fleece weights measured for each animal. Farm manager costs were determined for each farmlet as well as for measurements and maintenance which were not farm-specific.

To date the high set up costs Farm A and Farm C, together with the associated higher costs of labour, are making these two farms appear unprofitable at this stage. Farm B is the only one which is "in the black". However it is unfair to compare their total costs over just a three year time frame. To date the stocking rates on the three farmlets have been similar, and only this year has Farm A started to reach its potential for running more stock, and as the new pastures establish, will continue to do so for the next 10 to 15 years. The changes in the C farmlet pastures are only just emerging. Further analysis over the next few years should give a more realistic indication of both profitability and sustainability.

Acknowledgements: We are grateful to Australian Wool Innovation for funding The Cicerone Project and to CSIRO for lease of the land. We are very grateful to all Cicerone members, especially Board members, for their continued support. We also wish to acknowledge the contribution of Colin Mulchay and Libuseng Shakhane.

THE CICERONE PROJECT INC. STATEMENT OF FINANCIAL PERFORMANCE
FOR THE YEAR ENDED 30TH JUNE 2003

	2003	2002
OPERATING INCOME	**$**	**$**
Agistment	3,973	5,819
Donations Received	450	996
Entrance Fees	327	1,741
Farm Vehicle Trade-In	-	1,718
Sheep Trading Profit/-Loss	- 828	18,763
Cattle Trading Profit	-	-
Skins & Dead Wool	-	165
Subscriptions Received	5,138	6,196
Sundry Income	2,016	482
Valuation Refund	-	630
Wool Sales	41,535	25,927
	52,611	62,437
OTHER INCOME		
Industry Funding - AWI	120,000	157,274
Government Subsidy	-	3,206
Interest Received	1,941	1,523
Refunds	34	195
Total Income	174,586	224,635
LESS - OPERATING EXPENSES		
As per schedule attached	190,217	152,613
NET SURPLUS/-DEFICIT for year	**-15,631**	**72,022**

SCHEDULE OF OPERATING EXPENSES FOR THE YEAR ENDED 30TH JUNE 2003

	2003	2002
OPERATING EXPENSES	$	$
Accountancy & Audit Fees	2,000	1,525
Advertising & Publicity	2,112	2,209
Administration Expenses	2,022	1,900
Animal Health	3,349	4,916
Bank Charges	74	55
Commission & Yard Dues	1,185	871
Consultancy & Contracts	3,399	561
Data Base	3,000	4,971
Depreciation	10,969	5,675
Ear tags	2,871	30
Farm Vehicle Expenses	4,929	3,187
Fertilizer & Pasture Establishment	12,936	11,552
Fodder	20,057	2,188
Freight	930	262
Hire of Equipment	2,470	2,771
Insurance	628	583
Licences & Permits	105	179
Loss on Sale of Asset		723
Measurements - Nutrients	-	491
Measurements - Plants	-	5,467
Measurements - Water	-	175
Measurements - Worm Eggs	756	830
Measurements - Maps	1,320	
Measurements - Wool	3,254	1,674
Postage & Stationery	2,108	1,324
Protective Clothing	116	154
Rent	3,464	5,241
Repairs & Maintenance:		
Fences	303	5,240
Plant	1,269	172
Sundry	1,852	1,670
Shearing & Crutching	7,545	5,908
Sheep Coats	2,600	
Seminar Expenses & Dinners	2,363	1,261
Subscriptions	191	215

Superannuation	6,063		4,970	
Soil Tests		2,250		2,155
South African Sheep Project -				73
Sundry Expenses		386		4,339
Telephone		1,554		1,740
Training Course	591		118	
Trees		3,891		
Weed & Pest Control		27		810
Wool Selling Expenses		783		145
Workers Compensation Insurance		722		606
Wages:				
Casual		5,624		1,780
Administrator		40,938		32,476
Farm manager		27,211		29,421
Total Operating Expenses		**190,217**		**152,613**

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