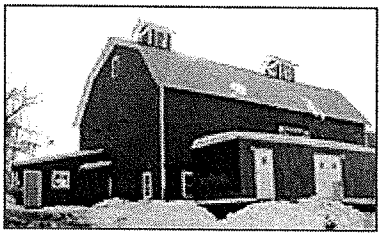
LNE 02-155

The CHEESEMOBILE

The Sullivan County modular cheesemaking training unit

The Sullivan County modular cheesemaking training unit, a.k.a "CHEESEMOBILE" is a New York State approved dairy plant in a 12'x 36' custom built modular office space type of trailer. The unit is complete with boiler, air handler, sinks, coolers, and a cheese make-room containing all the necessary equipment make, package and age cheese. The unit is supplied by lines from the milk room that fill the 200 gallon pasteurizer 3-4 times a week for cheesemaking.



Artisinal Cheesemaking is an excellent value added, small-scale supplement for traditional dairy farmers.

Where is it located?
Agriculture remains the leading economic sector in the rolling hills of Sullivan County NY. The rolling hills of the Catskill Mountain region have many 50-70 cow, family owned dairy farms. The economic survival of these farms is vital to the rural character of the hamlets and communities. The cheesemobile is currently being used in the "beechwoods", a renowned dairy farming region in the Sullivan County New York.

100 North Street, Monticello, NY 12701 (845) 794-3000 ext 3537

The CHEESEMOBILE

Download SARE FINAL REPORT 6.69

How was it created...

Farmers continued to pack the value-added dairy meetings and cheesemaking workshops in region, often stimulated by another downward cycle in milk prices.

With the growing interest in cheesemaking farmers were challenged to:
1. Secure the capital to go into an unknown venture.
2. Wade through the regulations and decipher equipment requirements.

The Northeast Sustainable Agriculture Research and Education Program selected an applica from Sullivan County for funding the "Modular Cheesemaking Training Unit" that created t program to answer the needs of the potential on-farm cheesemakers in Sullivan County.

With this funding and farmer ingenuity the "Cheesemobile", Plant #36-8446 opened in Apri 2003. This study was supported in part by the funds of the USDA Cooperative Agreement 2 38640-11740. see www.uvm.edu/~nesare

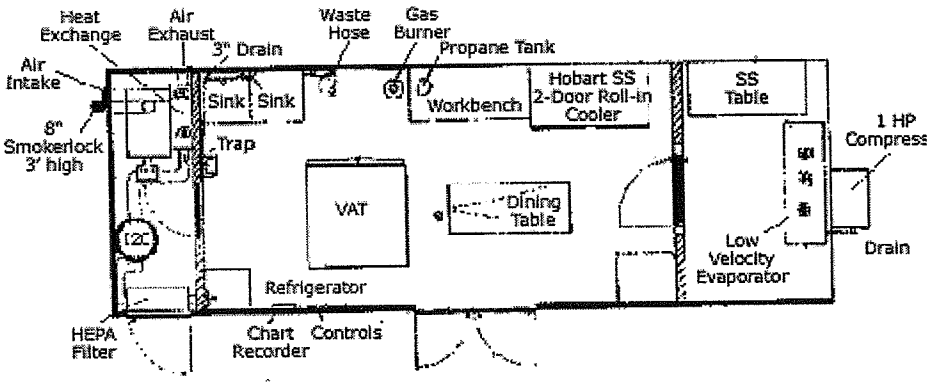
Principal contact regarding project:

Rick Bishop
Agricultural Economic Developer
Sullivan County Division of Planning
100 North Street
Monticello, NY 12701

Tel. (845) 794-3000 ext 3537
rick.bishop@co.sullivan.ny.us

The CHEESE MOBILE

Floor Plan



Click Here to Download PDF (32k)

The CHEESE MOBILE

Materials List

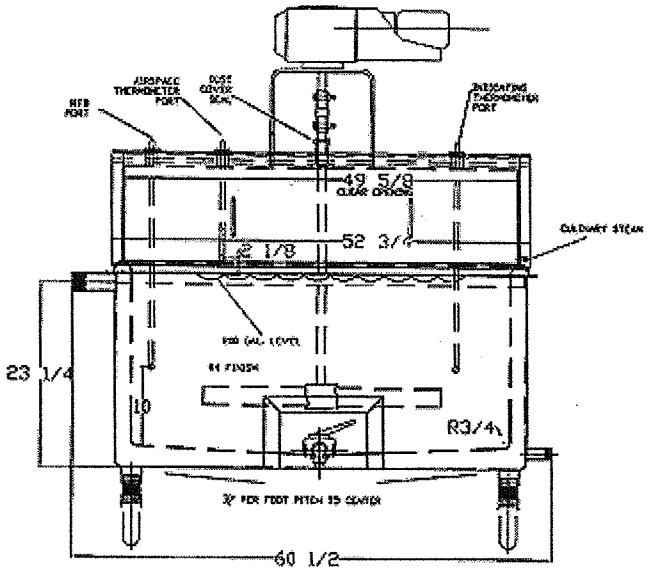
Item	Vendor	Cost
12' X 36' two axle HD Trailer	Resun Leasing Inc.	$19,490.00
Construction Design Consulting	Peter Dixon	$700.00
Miscellaneous construction supplies	Liberty Trading Post	$216.10
Concrete vinyl additive	Bogner Sitel Lumber	$415.64
BALLY refrigerator walls & door	Holyoke Equipment Co.	$1,900.00
1 Hp Compressor, Evaporator, controls	Designs by Keiser Corp.	$2,143.00
Silicone Caulk	Trading Post, Monticello	$29.94
3 inch angle iron compressor braces	Liberty Iron Works	$138.00
Steel Door	Diamond Door & Hardware	$489.50
Install Refrigeration equipment	John Kelly Refrigeration	$800.00
Combo Cheese Vat / Pasturizer (3A)	Tank Specialties Inc.	$19,600.00
Materials / Cheesemaking supplies	Glengarry Cheesemaking Supply	$771.75
Various Concrete supplies	Rowley Building Products Co.	$1,234.53
Misc building supplies	Liberty Trading Post	$226.23
Misc building supplies	Rowley Building Products Co.	$92.05
Sink, facet, carts, lugs, hot plate etc.	Designs by Keiser Corp.	$799.00
Sink, drain table, work table, work cart	Resnick Supermarket Equipment Co.	$1,268.00
Safety Glass for door	Monticello Plate Glass	$28.00
Valves, fittings electrical and HVAC	Schmidt's Wholesale Inc.	$2,680.24
Milk Sampling equipment	Eastern Crown Inc.	$64.99
Door sill, hinges and closer	Sull Co. Dept of Public Works	$152.82
HEPA Filtering Unit & controls	Northrup Supply Co.	$643.64
Small Refrigerator	Trading Post, Monticello	$99.99
Dairy Foods Consulting	Peter Dixon	$1,200.00
Stainless Steel Work Table	Resnick Supermarket Equipment	$300.00
Misc. dairy equip, controls, elec & pipe	MICO Equipment	$2,317.04
Milk Antibiotic Test Kit	Farm-Friend Direct / Nelson Jameson	$209.25
375,000 BTU Oil Boiler, tank, stack	A. Alport & Sons Inc.	$2,668.02
Ultraviolet Water Purifier	A. Alport & Sons Inc.	$946.28
120 gallon Stainless, Indirect heater	A. Alport & Sons Inc.	$1,463.10
Misc Plumbing, Controls	A. Alport & Sons Inc.	$120.87
Circulator	A. Alport & Sons Inc.	$124.61
Food Storage Containers	Designs by Keiser Corp.	$342.00
Oil Burner Parts & Service	Mirabito Fuel Group	$230.70
Roll-In 2-door Stainless refrigerator used	Designs by Keiser Corp.	$1,400.00
Dairy Foods Consulting	Peter Dixon	$838.00
Dairy Foods Consulting	Kathrine Biss, West Highland Dairy	$1,670.00
	TOTAL:	**$67,813.29**

The CHEESE MOBILE

Who was involved...

LOCAL
Cornell Cooperative Extension of Sullivan County, The Sullivan County Division of Planni the Sullivan County Partnership for Economic Development and ultimately, the Sullivan Cc Agricultural Local Development Corporation were all the local agencies involved in the development of the project.

STATE
The New York State Department of Agriculture and Markets, Division of Milk Control and Dairy Services, Dairy Products Specialist, William E. Fredericks, Jr.. see www.agmkt.state. Tank Specialties Inc. of Watertown, NY worked together with the State and County to desig and developed the first 3-A certified Tri-Vat, for pasteurizing, holding and cheesemaking. www.tankspecialties.com With the success of the current "Cheesemobile" Tank Specialties re-designed an improved modular plant that is available as a turn-key, 3-A pre-approved Mc Cheesemaking Unit.



The draft drawings from the development of the Tri-Vat from Tank Specialties

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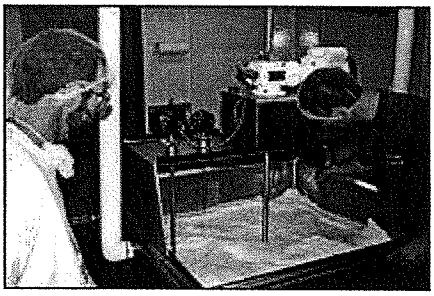
The CHEESE MOBILE

Cheesemaking Instructors

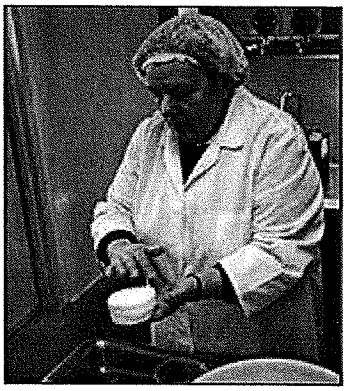
Early in the development of the project, Jonathan White of Bobolink Dairy influential in directing the decisions of the farmers and project leaders. The focus on the grass based dairy farms and the virtues of their milk for cheesemaking came from his concept of a grasslands cheese consortium being formed in the region. see www.cowsoutside.com

Peter Dixon
Peter Dixon of Putney Vermont was the practical instructor who assisted in the floorplan, equipment layout and design, and followed thru with instruction in the unit. His expertise ranges from teaching the fresh milk cheeses such as mozzarella, formage blanc, ricotta along with yogurt; to the classic farmstead favorite, raw milk tomme.



Peter teaching with a batch of raw-milk tomme

Katherine Biss
Katherine Biss from the West Highland Dairy in Scotland has produced award-winning cheeses for decades and has been teaching farmers in the U.S. her skills. The cheeses she introduced include Double Glouchester, Coulommier, Crowdie, and Carephilly. She is equally effective at teaching a classroom of farmers or working one-on-one with equipment design and cheesemaking.
info@westhighlanddairy.co.uk



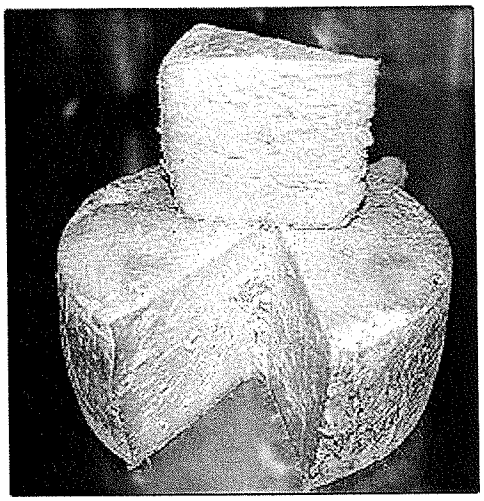
Margret Morris
Margret Morris of Glengarry Cheesmaking in Ontario was the final instructor we utilized to round-out the cheese instruction to include Munster and Blue cheeses.
www.glengarrycheesemaking.on.ca

100 North Street, Monticello, NY 12701 (845) 794-3000 ext 3537

The CHEESEMOBILE

Why Farmstead Cheese?

- Increase in popularity and consumption of artisinal cheeses
- Cheese has a demonstrated ability to be profitable on a small scale
- Value-adding on farm is important given record low milk price periods
- The farmstead cheesemaking enterprise makes direct marketing possible



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The CHEESEMOBILE

Farmer Case Studies

CASE STUDY #1
40 Cow Holstein – grass based

Goal of Farmer:
"To experiment with on-farm cheesemaking to see how it works out, and then we are consic building a plant across from the barn."

Question #1 - What Type of Products will you make?
Cheese Types to include:
TOMME
MOZZERELLA
ASIAGO -(reduced butterfat)-requires seperator
MOZZERELLA, RICOTTA - (fresh-34 degrees)
Other products include: YOGURT and BUTTER (34 degrees)

Question #2 - How will you market and distribute these products?
Off-farm to Restaurants and Retailers.
On-farm and local possibly for fresh products like Ricotta / Yogurt.
Potentially 25% of cheese wheels to Jonathan Whites' Grasslands Cheese Consortium.

Question #3 - What Volume of milk will you process?
The Volume is open, currently selling to Parmalat with no signed contract.
Would experiment with approximately 80-100 gallons a few times per week.

Question #4 - Will you age cheeses on farm?
Yes, considering installing a container in the ground for aging.(approved if painted)
Would be interested in "cash flowing" the aged cheeses with Ag-Revolving Loan Fund.

Question #5 - Is there sufficient water for processing?
Yes, two wells one 150 feet and one 900 feet deep.

Question #6 - How will the waste from the plant be managed?
The wash water and whey will be pumped into barrel type manure spreader.
(land disposal)

Question #7 - How will you connect to the Bulk Tank?
Using a solid line from milk room, run inside the barn, insulated, and washed with CIP.

CASE STUDY #2
50 Cow, 5 breed mix

Goal of Farmer:
"To continue improving herd health and milk quality so we can really do something with ou milk"

Question #1 - What Type of Products will you make?
Cheese Types to include:

CHEDDAR□WAX TYPES
Other products include: BUTTER and BOTTLED MILK

Question #2 - How will you market and distribute these products?
On-farm and shipping to high-end restaurants & retailers.

Question #3 - What Volume of milk will you process?
Approximately 100-150 gallons 1-2x per week.

How Was It Created
Floor Plan
Materials List
Who Was Involved
Cheesemaking Instructors
Why Farmstead Cheese
Farmer Case Studies
Equipment Suppliers
Typical Cheese Plant Capital Costs
Regulations, Licenses and Equipment
Marketing, Economics

Question #4 - Will you age cheeses on farm?
Yes, in walk-in refrigeration unit, but not in a mold or surface ripened aging room.
Would be interested in "cash flowing" the aged cheeses with Ag-Revolving Loan Fund

Question #5 - Is there sufficient water for processing?
Developing an additional spring because well water is limited. Water will be tested accordir the requirements in the – PMO..

Question #6 - How will the waste from the plant be managed?
Utilizing the existing "Milkhouse Waste Management System" (land disposal)

QUESTION #7 - How will you connect to the Bulk Tank?
Using a Dumping Station and hoses..

The CHEESEMOBILE

Home Con

Equipment Suppliers

3-A Cheese Pasteurizers and Vats

Tank Specialties Inc (A division of Stebbins)
363 Eastern Blvd.
Watertown, NY 13601
(315) 782-9002
www.tankspecialties.com

Affordable Dairy Processing Equipment

Schier Company Inc
14459 S. 65th W. Ave
Sapulpa, OK
(918) 321-3151
www.schiercompany.com

Cheesemaking Supplies

New England Cheesemaking Supply Company
P.O. Box 85
Ashfield, MA 01330
(413) 628-3808
www.cheesemaking.com

Cultures, molds and supplies

Glengarry Cheesemaking & Dairy Supply
21048 Concession # 10, RR#2
Alexandria, Ontario,
Canada, K0C 1A0
(613) 525-3133
www.glengarrycheesemaking.on.ca

Dairy and lab supplies

Nelson Jameson
2400 E. 5th Street
Marshfield, WI 54449
(800) 826-8302
www.nelsonjameson.com

Dairy equipment specialists

International Machinery Exchange (IME)
214 N. Main Street
Deerfield, WI 53531
(608) 754-8240

Dairy Products Distributor, testing equipment

Eastern Crown Inc
P.O. Box 850
Vernon, NY 13476
315 829-5311

www.easterncrown.com

HEPA Filtration and heat exchangers

LIFEBREATH Equipment
Nutech Brands Inc.
511 McCormick Blvd
London, Ontario N5W 4C8
(519) 457-1904
www.lifebreath.com

High temperature short time pasteurizers

Goodnature Products, Inc
149 Bud Mill Drive
Buffalo, NY 14206
(716) 855-3324

Penzyme Milk Test

CHR HANSEN
9015 West Maple Street
Milwaukee, WI 53214-4298
(800) 558-0802

Sanitary Processing Equipment

Rowlands Sales Company, Inc
Butler Industrial Park
PO Box 552
Hazleton, PA 18201
(570) 455-5813
www.rowlands.com

Separators and other Equipment

Jacques Brazeau Equipment
455 Kitchener
Hawkesbury, Ontario
(613) 632-9362

Stainless Steel processing equipment

Heritage Equipment Company
9000 Heritage Drive
Plain City, OH 43064
(614) 873-3941
www.heritage-equipment.com

Used equipment

Midstate Dairy Systems
Bob McDonough
De Ruyter, NY 13520
(315) 852-9591

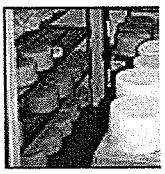
100 North Street, Monticello, NY 12701 (845) 794-3000 ext 3537

The CHEESEMOBILE

Typical Cheese Plant Capital Costs

If you were to model a family farm that will make cheese from all of their milk, here are typ cost estimates for capital investments.

Facilities and Equipment



50 cow dairy
15,000 lb. herd average = 750,000 lbs of milk per year

CheesePlant
3,000 lbs/Day...Working 250 days per year

1,800 sq. ft. x 1 lb. = Daily capacity
Daily capacity 0.6 sq. ft.* 3,000 lb Requires 400 gallon vats

*Average from Minnesota Farmstead Cheese Study, University of Minnesota Agricultural Extension Service 1979

Construction, Utilities and Equipment Costs (calculated at $80 / sq. ft.)

$80 x 1,800 sq. ft. = $144,000 total plant cost

Theoretical itemization of costs

Facility	$82,000
Pasteurizer	$20,000
Cheese Vat	$15,000
Boiler	$9,000
Air Handler	$2,000
Utilities	$10,000
Misc. Equip	$6,000
	$144,000

Working Capital Requirements

750,000 lb. of milk per year with average 4 month aging cycle = 250,000 lb per cycle

$15 per cwt average for the milk equals	$37,500
$1,500 per week labor, materials, supplies	$25,500
Estimated working capital required for initial aging cycle	$63,000

The CHEESE MOBILE

Regulations, Licenses and Equipment

Licenses

Milk Dealer's License $100
NY State Department of Agriculture and Markets
Division of Dairy Industry Services and Producer Security
Division of Milk Control
Albany, NY 12235
(518) 457-5731

Request: Form DMC-1507
APPLICATION TO RECEIVE AND/OR PROCESS MILK AND MILK PRODUCTS,

Processing Plant Superintendent's License
New York State Department of Agriculture and Markets
Division of Milk Control
Albany, NY 12235
(518) 457-1772

Request: Form DCM 1618
This requires annual attendance at a Seminar for Processing Plant Supervisors that are held throughout the State by the Division of Milk Control.

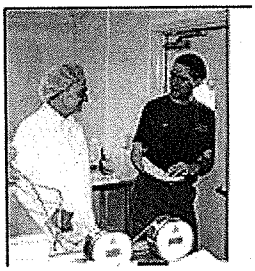
License to sample producer's milk
New York State Department of Agriculture and Markets
Division of Milk Control
Albany, NY 12235
(518) 457-1772

Request: Form DMC 163
- Application and Notification for Article 4 License
- Circular #278, "SAMPLING PRODUCER MILK"

Within the Northeast Milk Marketing area you need to apply to the Market administrator fo producer-handler designation. Call :(518) 452-4410

Dairy Promotion obligations must be paid directly, $0.10 per cwt. to the State Promotion O and $0.5 per cwt. to the National Dairy Promotion Order, in accordance with the monthly m utilization report forms.

Requirements for Sanitation & Equipment



Sanitary Regulations for Small Dairy Plants
An excellent overview of the sanitary regulations for small dairy plants can be found in the 2-page outline from the NY State Processing Plant Supervisors School handout from 2002

Guidelines for the environmental air control and quality for dairy food plants
Exact information is contained in the "Guidelines for the environmental air control and qual for dairy food plants" DPC # 13, available for $4 from:

Dairy Practices Council
51 E. Front St., Suite 2
Keyport, NJ 07735
(732) 203-1947
www.dairypc.org

FDA Dairy Industry Regulation Book (PMO)
The "A" Pasteurized Milk Ordinance" (PMO) is the FDA's regulation book for the dairy in safety standards and rules for processing milk.

Code of Federal Regulations (CFR)
The Code of Federal Regulations (CFR) contains the legal definitions of all dairy products the legal criteria for how it is made and federal standards for composition.

Both the PMO and the CFR are worth referring to in order to understand the requirements o inspectors. Every plant project should begin with a meeting with the local Milk Control inspectors.

The Division of Milk Control, Dairy Equipment Specialist, William Fredricks has proven to very helpful in developing a plant as he has years of experience and knowledge about all siz dairy processing equipment. (518) 457-5731

The CHEESEMOBILE

Marketing & Economics

Market Tiers

1. Direct Marketing
The principal methods of Direct Marketing of Farmstead Cheese include selling ant farmers Markets and using mail order/internet sales.

Our experience in marketing has been developed by direct feedback from consumers at the Farmers Markets. This has been an important source of inputs to guide the type and volume cheeses produced to date in the "Cheesemobile". The same developmental process has prov vital with poultry, livestock or produce farms who grow a business by selling in a Farmers Market.

Advantages:
- 100% of the consumer "food dollar" is received by producer.
- No delay in cash flow or handling of accounts receivable.
- Customers are understanding because the farmer explains variations in products.

Disatvantages:
- Too much time spent off of the Farm.
- Limited volume of product can be moved.
- Weather dependent sales.

2. Wholesaling
The Restaurant / Retail Store Trade has an incredible appetite for farmstead cheeses for the producer that can meet the requirements of doing business with this sector.

The tasks of Sales, Delivery, Packaging, and Billing are often difficult to manage as the bus expands.

Advantages:
- The volume of product that can be moved is greater than direct marketing.
- 80% of the consumer "food dollar" can be received by the producer.

Disdvantages:
- The Farmer must consistently provide a variety of services to a demanding Industry.
- Packaging and handling of numerous cut-wrap-ship orders.
- Cash-flow / collections can be difficult.

3. Distributors
When the cheesemaker has earned a reputation and demand is sufficient for the product, it i: often necessary to engage a broker or distributor to ship thru.

A sufficient volume of cheese must be produced for this marketing tier because the percenta profit is reduced. It is often a good strategy to include 50-80% of sales thru a distributor as a marketing base to cover operational overhead while working the other more profitable mark

Advantages:
- Ability to focus on the farm and cheesemaking.
- Capacity for growth is expanded.
- Less sales, billing, packaging and delivery requirements.

- The "Disconnect" from end users, not in control of your product's destiny.
- 65% of consumer "food dollar" returned to producer - thinner profit margins.

Economics

Using the Cheesemobile for Production Run-up

	300 gal/week **Year 1** 12,000 lb/yr @ $6.00 *	450 gal/week **Year 2** 18,000 lb/yr @ $6.00	600 gal/week **Year 3** 18,000 lb/yr @ $6.
Income	$108,000	$108,000	$144,000
Expenses			
Milk averaged at $14/cwt	$25,200	$25,200	$33,
Fuel averaged at $14/cwt	$3,600	$3,600	$4,
Supplies/Packaging 7%	$7,560	$7,560	$10,
Maintenance			
Utilities / Phone	$1,600	$1,600	$2,
Insurance $11 / $1,000 x $50,000	$550	$550	$
Taxes $27 / $1,000 abated	$270	$270	$
Operating Loan interest	$900	$900	$1,
Capital Loan $80,000 @ 6% - 15 years	$8,100	$8,100	$8,
Plant Management	$20,000	$20,000	$30,
Non-Owner Labor	--	--	$25,
Total Expenses	$54,465	$67,780	$116,765
NET RETURN	$17,535	$40,220	$27,235

Typical Plant operations

The CHEESE MOBILE

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Contact Us

This study was supported in part by the funds of the USDA Cooperative Agreement 2002-3 11740. see www.nesare.org

Principal contact regarding project:

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