Vegetation Management
Case Study & Cost Comparison

Doncaster Metropolitan Borough Council
Street Scene Department

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Grass Growth Management Case Study & Cost Comparison

Introduction

Doncaster Metropolitan Borough Council Street Scene Department provides a service of maintaining public use grassed spaces, including along park fence lines, obstacles and around housing estates, car parks, verges, roundabouts and play areas.

As part of this work, an evaluation study was undertaken into the Councils current vegetation management programme, in particular the control of weeds, and what potential options were available in comparison to the current practice.

Current practice and analyses

The Council was controlling weed growth through the use of council operator teams applying glyphosate herbicide by Controlled Droplet Application (CDA) spray lances and additional visits using strimming machines. This had been a well-established practice over a number of years.

Applied through specialist CDA applicator lances, two glyphosate treatments were applied and six strimming visits made over a 12 month period.

Strimming Cost

Application labour cost per hour	£10.00
Strimming machine cost per sq.m (hire/servicing)	0.01p
Labour output of sq.m per hour	330
Total number of hours to strim one hectare	30.3
Cost per hectare	£303.03
Cost per sq.m	0.03p
Total number of hectares cut	100
Operation cost per 100 hectares	£30,303.03
Frequency of strimming applications/annum	6
Total annual strimming cost	**£181,818.18**

CDA Herbicide Cost

Cost of CDA glyphosate (inc. lance hire) per litre	£7.83
Treatment applied at	15l/ha
Treatment cost per ha	£117.45
Treatment cost per sq.m	£11.745
Number of hectares treated	100
Frequency of CDA treatments/ /annum	2
Total CDA chemical cost per annum	**£23,490.00**

Labour

Application labour cost per hour	£10.00
Labour application work rate per hour	1,000 sq.m
Total number of hours to treat one hectare	10
Total number of treated hectares	100
Frequency of applications per annum	2
Labour application cost per annum	**£20,000.00**
Combined CDA Herbicide & Labour Cost	£43,490.00
Strimming Cost	£181,818.16
Total Cost per 100 hectares/annum	**£225,308.18**

Evaluation

Problems identified with this practice was the frequency required (repeat visits) to keep the vegetation under control, the maintenance and replacement of machines and the Health & Safety aspects involving HAV's (white finger issues).

The Council looked at a number of alternative options with the objective of eliminating the use of strimmers. The evaluation of options quickly came to the conclusion that the residual herbicide *Chikara,* combined as a tank mix with glyphosate would provide major cost saving benefits.

The Council evaluated a single annual spray treatment using a combination tank mix of a clean label glyphosate formulation and the herbicide *Chikara*.

Chemical Control

Chikara is a post emergence herbicide with a high level of residual activity.

Combined with the clean label glyphosate, weeds that are present at the time of treatment are killed and the long-term residual activity of *Chikara* prevents seeds from those weeds and others still in the soil from germinating.

Applications were undertaken over the 100 ha in the months of February/March. Knapsacks were used on 40% of the area and the remaining 60% treated using Quad bikes fitted with a spray boom.

Herbicide Cost

Combined cost of herbicides as a tank mix per hectare	02.8p
Labour cost to apply spray treatment per hectare (see note below)	0.01p
Cost of herbicide + labour per sq.m	03.9p
Cost to treat one hectare	£390.00
Total annual cost to treat 100 ha's	**£39,000**

Note: Knapsacks and Quad bikes cost included in this figure

Applications were made faster using the Quad bikes, thus saving more labour time that could be allocated to other projects.

Comparision of costed options

Total ANNUAL cost of vegetation management over an area of 100 hectares

CDA application x 2 PLUS Strimming x 6 visits	=	£225,308
Chikara/glyphosate application x 1	=	£39, 000
		(£225,269)

Savings

The Chikara/glyphosate treatments versus CDA glyphosate + strimming provided ANNUAL SAVINGS of £225,269

Hidden benefits

Equipment

- The elimination of strimming, reduced operator to exposure to Hand Arm Vibrations (HAV's)
- Not using strimming machines removes the need for maintenance/servicing and carrying fuel.
- Using Quad bikes for 60% of the area treated reduced spraying time provided a 50% saving in spraying time.
- Lower service costs for knapsack (done in house) compared to cost and logistical issues of sending away CDA's for servicing/repair.

Chemicals

Using Quad bikes for some of the spraying reduced the time taken on treatments by 50%.

- Combining as a tank mix different chemical actives reduces potential weed tolerance and chemical resistance.
- Reduction in chemical actives applied to treated surfaces
- Tank mix applications of *Chikara*/Clean label glyphosate, early in the year, releases labour for the busy grass cutting season

"Due to staffing restructures, the use of Chikara / Glyphosate has assisted us to maintain service delivery. In addition this has allowed for more efficient work planning when during the summer months we would have normally been spraying

We applied a single tank mix of Chikara plus Clean label glyphosate in February 2015. This provided us with 12 months of weed control from this one treatment.

Due to less strimming, operator exposure has been significantly reduced to noise and exhaust fumes and for employers, public liability claims."

Darren Bisbey

Products used in this study

Clean label glyphosate	Suggested Selling Price	£53.00/5lt
Chikara	Suggested Selling Price	£227.00/150g
CDA glyphosate CDA (Industry standard)		£32.50/5lt
CDA lance		£500/annum
Strimmer running cost		0. 01p/sq.m
Labour (including transport/overhead cost)		£10/hour
Operation work rates		
Strimming		£330 sq.m/hour
Spraying		1,000 sq.m/hour (Knapsack)
		2,000 sq.m/hour (Quad)

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